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INTRODUCTION

Ronald Carter
Department of English Studies
University of Nottingham, England

The past decade has seen a considerable expansion of interest in vocabulary studies, particularly in the context of linguistics applied to second language learning and teaching (for representative studies and overviews see Carter, 1987; Carter and McCarthy, 1988; Gairns and Redman, 1986). Such studies are principally concerned with descriptive accounts of the operations of lexis in use and with the development of appropriate strategies for teaching English vocabulary to speakers of other languages. It can now be claimed that vocabulary is no longer a neglected aspect of language teaching and learning and is no longer a victim of discrimination by researchers who for a considerable period of time deemed syntax to be the sole core of processes of language development. An examination of two recent bibliographies (Meara, 1983, 1987) shows how far vocabulary research has come. They also show the specific expansion of vocabulary acquisition research, highlighting the extent to which any real developments in procedures for vocabulary *teaching* must await answers to fundamental questions to do with vocabulary *learning*. Although one book is in press (Nation, 1990) which begins to explore important cross-connections between vocabulary learning and teaching, there is in this volume a principal concern with vocabulary acquisition and learning. However, many of the papers contain highly relevant implications for vocabulary teaching and the volume as a whole will, we hope, maintain the complementary distribution of energies between research into vocabulary description, vocabulary teaching and vocabulary learning as a result of its particular focus on *acquisition*.

It would be naive to pretend that this collection of papers offers easy answers to the question - what does it mean to know a word? or the other questions related to this central question. In this volume the following other main questions are put:

1. Quantitative Questions

Quantitative questions start from investigations into the number of words the learner knows or may need to know at a particular stage of learning. Issues of frequency, the construction of core vocabularies, definitions of the size of vocabularies required for specific tasks such as reading (or as a basis for guessing or inferring meanings in different levels of text) are uppermost. Such questions are touched on in the paper of Laufer in this volume and are a particular focus in the paper by Dollerup, Glahn and Hansen. The latter authors challenge some of the assumptions underlying word lists and fixed definitions of vocabulary size arguing instead that there is in the reading process, in particular, an altogether more fluid word knowledge which results from a text-specific encounter with vocabulary and that this fluidity in turn depends on the kind of variable reading strategies a reader employs.

2. Processing Questions

How we process language input has been a main orientation in second language acquisition research. The paper by Haastrup in this volume takes vocabulary processing as a starting point, exploring in particular how a group of learners develop lexical inferencing strategies in their processing of new words. The study bears out that there is a positive correlation between competence in L2 lexical inferencing (in the sense of guessing unknown words in context) and the proficiency of the learner in reading texts in L1 and L2. Good word processors are thus also good text processors. In his contribution to this volume Palmberg makes a related investigation of a learner's 'feel' for new vocabulary by exploring the interface between 'receptive' and 'potential' vocabulary in the learning process. Palmberg is interested in a notion of 'distance' between languages and produces interesting results from an experiment to determine the extent to which Swedish speaking initial learners can identify words as belonging to the English language, arguing that learning new words in English is in part connected with developing a feeling for their 'Englishness'.

3. Evaluation Questions

In order to test a learner's knowledge of a word, it is necessary to un-derstand fully what it means to 'KNOW a word' or at least what it means effec-

tively to process lexical input. In his paper Arnaud investigates, by means of a 'multi-trait - multimethod' procedure, the extent to which separate tests of vo-cabulary and grammar are valid. The paper raises fundamental descriptive questions of where knowledge of vocabulary stops and knowledge of grammar starts and also offers a penetrating survey of approaches to assessing lexical competence.

Meara's contribution to this volume is also the general area of evalua-tion. Meara explores the key problem of finding a procedure for testing vo-cabulary knowledge which is sensitive to a range of different vocabulary teaching strategies. Meara advocates a common research programme which adopts a specific transitional probability matrix as a basis for measuring L2 vocabulary knowledge and which avoids some of the pitfalls associated with surface rather than structural accounts of 'knowing a word'.

4. Questions of Difficulty

Definitions of 'difficult words' or 'easy words' are key elements in the question: 'what does it mean to know a word?' They are bound up with further questions of why some words are easier to recall than others, why some words can be retained over periods of time while others are more difficult to retain and what part is played by the specific learning encounter with a word in processing retention and recall. In the paper in this volume by Laufer a further factor of 'deceptive transparency' is explored, particularly with reference to reading comprehension. Here words with similar forms across languages can create greater difficulties (and deceptively so) than those which are transparently not related. Schouten-Van Parreren's paper explores similar ground again with references to reading processes. She is interested in the different strategies adopted by successful and unsuccessful learners and her conclusions concerning inferencing procedures, memorizability of words, problems of transfers between words with similar forms in L1 and L2 can be usefully compared with the above paper by Laufer as well as with the papers by Palmberg and Haastrup, in particular, which explore similar territory and which also aim to uncover universal psycholinguistic procedures. The paper by Breeder, Extra and Van Hout, is similarly oriented towards discovering universal principles of vocabulary acquisition. Their paper demonstrates that there are cognitive similarities between children and adult learners in the development of an L2 mental lexicon, and underlines the crucial role of activity-type in the teaching/learning of vocabulary.

5. Developmental Questions

The focus of Broeder et al is necessarily a narrow one (mainly on pronominal reference). In the papers by Ghadessy and Nattinger and Decarrico rather wider angles are taken. Ghadessy examines the role of vo-

cabulary in writing development with particular reference to its role in text formation and in terms of its appropriacy to different genres of writing. Ghadessy also takes a pedagogic perspective by questioning whether school textbooks serve adequately to promote this dimension of lexical competence. Nattinger and Decarrico also adopt a more pedagogic perspective on development, underlining the importance of fixed lexical routines (termed 'lexical phrases') in establishing coherence across speaking turns in conversation. Nattinger and Decarrico explore the hybrid nature of these phrases, operating as they do at the interface between lexis and syntax and demonstrating as they do a remarkable dine of 'fixity' between rigidly immutable phrases and phrases open to a range of creative reformulation. Nattinger and Decarrico argue for the crucial importance for second language learners of these lexical phrases being explicitly taught, pointing interestingly to their provenance in languages other than English. These latter papers show an involvement with questions of pedagogic strategies for vocabulary development which only underline the vital requirement of knowing more about vocabulary acquisition.

6. Conclusions

One conclusion we can draw from an introductory editorial note which has focused on some key questions is that there are many interrelated questions in this complex field, the answers to which will greatly facilitate processes of language learning and teaching. The following core questions may be addi-tionally set alongside or related to those investigated in this *AILA Review*: i) what is the relationship between newly acquired words, rates of retention and recall and the word-handling skills of the learner? ii) what is the effect on this relationship of different teaching methods? iii) how far do learners differ in learning vocabulary under different 'conditions' eg key word in context; word with translation equivalent; word isolated on word list? iv) are there equivalent strategies adopted for vocabulary development in L1 and L2? (see here McKeown and Curtis (1987) for a range of L1 research initiatives largely un-registered in the L2 vocabulary research literature); what exactly is 'lexical transfer'? v) what is the effect on vocabulary learning of different kinds of reinforcement? vi) what can computer-aided word lists (eg the COBUILD research at the University of Birmingham, UK) tell us about 'natural' text-based patterns of vocabulary organisation and what might the resulting implications be for learning and teaching eg lexical collocations? The list is, of course, theoretically much longer that this in more senses than one.

The topic of Vocabulary Acquisition is a good choice for an edition of the AILA Review, and the papers collected here represent some further steps towards fuller understanding of an area the importance of which has only been fully recognised in recent years. The further steps taken serve to illustrate, however, how many more steps are needed before we can begin properly to answer central questions such as - what does it mean to know a word.

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A FACTOR OF DIFFICULTY IN VOCABULARY LEARNING: DECEPTIVE TRANSPARENCY

Batia Laufer
University of Haifa

1. Introduction

An examination of a recent bibliography on vocabulary studies (Meara 1987) reveals that vocabulary is no longer a 'victim of discrimination' (Levenston 1979) among language acquisition researchers. Among the growing number of research questions addressing vocabulary learning, some are of a predominantly psychological nature e.g. the arrangement of L2 words in the mental lexicon; some - of a quantitative nature e.g. the number of words the learner knows at a particular stage of learning; others have dealt with pedagogical issues, e.g. the best methods of teaching particular types of words. [1]

Two questions which are relevant to the present study are: What makes words easy or difficult to learn and the relationship between vocabulary knowledge and reading comprehension. Some factors which have been claimed to affect vocabulary difficulty are: word pronounce, length, part of speech, specificity, idiomaticity, multiplicity of meaning and others, different coding of LI, interaction with already familiar words, and others. (For re-views of research see Ludwig, 1984; Laufer, 1990; Laufer, forthcoming). As for the relationship between vocabulary and reading, some questions that have been asked are how successful learners can be at guessing unknown words, under what circumstances guessing improves, how many words in a particular text the learner should know to comprehend the contents, and others. (Ostyn et al., 1987; Laufer, 1988, Liu Na and Nation, 1985; Nation and Coady, 1987; Palmberg, 1987 and 1988).

This paper will deal with yet another factor of difficulty in vocabulary learning which will be referred to as 'deceptive transparency'. Though de-ceptively transparent words can be problematic both in comprehension and in production, this paper will focus on deceptive transparency as a factor of dif-ficulty in reading comprehension only. In section two of the paper, deceptively transparent words will be defined and classified; in section three, an experiment will de described which tested several hypotheses about deceptively transparent words.[2]

2. Deceptive Transparency

2.1 Transparency

Ullman (1962) discusses three types of transparent words. The most frequent ones are morphologically transparent words (or morphologically motivated) those words whose meaning can be determined from the meanings of their parts, e.g. 'doorman', 'unavoidable'. The second type includes words whose sense can be understood from the sound form e.g 'bang', 'snore', 'crack'. These are the onomatopoeic words, the ones that are phonologically motivated. The third type of transparent words are the semantically motivated ones, whose figurative meaning can be understood from their relation to the literal meaning, e.g. 'coat of paint', 'jacket potato'. (For a detailed discussion see Ullman, 1962, Ch.4.)

If the above definitions of transparent words are considered from the point of view of understanding words in non-native languages, they are in-complete, since the clues of interpretation in Ullman are intralingual only. In the attempt to detect the meaning of a word in a foreign language, readers/listeners will often use inter-lingual clues, or a combination of intra- and inter-lingual clues (Palmberg, 1987 and 1988). Thus, a word can be transparent because of its resemblance to its translation equivalent in another language familiar to reader/listener (whether it is his/her LI, or not), e.g. 'liberté' is transparent to anyone who is familiar with the english 'liberty'. A word can also be transparent if a part of it resembles a familiar word in an-other language and another part is meaningful in the language of the new word, e.g. 'appeltje' in Dutch is transparent if you know 'apple' in English and the diminutive meaning of the suffix -tje in Dutch.

Because of the different clues used in interpreting words in foreign lan-guages, I suggest that in the context of foreign language learning, words should be considered transparent if they can be interpreted on the basis of intra" and/or inter-lingual clues in the word itself.[3]

2.2 Deceptive Transparency

While some new words in a foreign language may be genuinely trans-parent and may therefore be easy to understand and remember (Heltai, 1987), others, on the other hand, only LOOK transparent but are not. For example, 'infallible' looks as though it were composed of in+fall+ible and meant 'something that cannot fall'; 'shortcomings' looks like a compound of 'short' and 'comings', meaning 'short visits'. [4] These words are therefore 'deceptively transparent'. We could define a deceptively transparent word as a word which seems to provide clues to its meaning but does not. Put differently, deceptively transparent words are words which learners think they know but they do not.

2.3 Categories of Deceptively Transparent Words

The following classification is based on a corpus of errors collected over several years of teaching English as a Foreign Language to first year university students of Humanities and Social Sciences. They were all high school graduates, whose level of English was more or less equivalent to the Cambridge First Certificate of English. Since most of the course was devoted to reading comprehension, most of the collected errors were errors of misinterpretation. The deceptively transparent words (hence DT words) which induced errors seemed to fall into one of five distinct categories which will be described below.

2.3.1. Words With A Deceptively Morphological Structure

These are words that look as if they were combined of meaningful morphemes. Thus, 'outline' was misinterpreted as 'out of the line', 'nevertheless' as 'never less', 'discourse' as 'without direction'. The learner's assumption here was that the meaning of a word equalled the sum of meanings of its components. This assumption is correct in the case of genuinely transparent words, but not when the 'components' are not real morphemes.

2.3.2. Idioms

'Hit and miss', 'sit on the fence', 'a shot in the dark', 'miss the boat' were translated literally, word by word. The learner's assumption in the case of idioms was similar to that in 2.2.1, i.e. the meaning of the whole was the sum of meanings of its parts.

2.3.3. False Friends

'Sympathetic' was interpreted as 'nice' (Hebrew - 'simpati'); 'tramp' as lift (Hebrew - 'tremp'); 'novel' as 'short story' (Hebrew - 'novela'). The mistaken assumption of the learner in this case was that if the form of the word in L2 resembled that in LI, the meaning did so too.

2.3.4. Words With Multiple Meanings

If often happens that students know one meaning of a polyseme, or a homonym and are reluctant to abandon it even when, in a particular context, its meaning is different. For example, 'since' was interpreted as 'from the time when' though it meant 'because'; 'abstract' as 'not concrete' instead of 'summary'; 'state' as 'country' instead of 'situation'. The mistaken assumption of the learner in this case was that the familiar meaning was the ONLY meaning.

2.3.5. 'Synforms' (Similar Lexical Forms)

The largest category of DT words is that of 'synforms' pairs/groups of words similar in form. (For criteria of synform similarity, classification of synforms and discussion of the problems they raise, see Laufer, 1985 and 1988.) Generally speaking, some synforms are similar in sound (cute/acute;

available/valuable; conceal/cancel; price/prize; some are morphologically similar (economic/economical; industrious/industrial; reduce/deduce/induce).

Synformic confusions may have two sources: the learner might have learnt one word of the pair/group, but since its representation in the memory id insecure or defective, a similar word which shares most of its formal features, might look identical to it. Or, the learner might have studied both synforms but since his knowledge of both is insecure, he is not sure which word form is associated with which meaning. Whatever the reason, the result is misinterpreting one synform as its counterpart.

2.4 Checking deceptive transparency

In section two it was suggested that, in the framework of second language learning, a modified definition of transparency could be adopted, which would account for both inter- and intralingual clues in detecting the meaning of words. The notion of deceptive transparency was then introduced. Deceptively transparent words were defined as words which seemed to provide clues to their meaning but in fact did not. DT words were found to belong to one of five categories: words with a morphologically deceptive structure, idioms, false friends, words with multiple meanings and synforms. The empirical verification of deceptive transparency as a factor of difficulty id the subject of the next section.

3. The Experiment

3.1 Research Questions

One could argue against DT as a factor of difficulty by claiming that:
(a) learners misinterpret all kinds of words, not necessarily the DT ones; therefore the number of errors induced by DT words would not be significantly higher than the number of errors induced by non-DT words; (b) when the learner thinks he knows a word, but does not, this is not due to specific word characteristics (those of DT words); therefore if tested for lack of awareness of ignorance, there would be no significant difference between DT and non-DT words.

The study was designed with the above arguments in mind. It addressed the following research questions:
(a) Is the frequency of errors induced by DT words different from the error frequency induced by non-DT words?

b) Is the learners' awareness of their ignorance of DT words different from the awareness of their ignorance of non-DT words? Question (b) was subdivided into two questions:

(i) when faced with unknown DT words, will the learners recognise them as unfamiliar more often than not recognise them as such?

(ii) when learners are unaware of their ignorance of words, is it in the case of DT words more often than with non-DT words?

3.2 Procedure

The subjects were 100 first year university students taking a course in English for Academic Purposes. They were all high school graduates [5], native speakers of Hebrew and Arabic.

The study was conducted in two stages. In the first stage, learners were given an unseen text on a subject of general nature with comprehension questions [6], to ensure that they were reading for comprehension. The tasks were (a) to answer the questions; (b) to underline unknown words in the text. 'Unknown' meant a word that could not be understood from text context. The
answer sheets with comprehension questions and the texts with the underlined words were collected.

Stage two followed immediately. The learners were given a clean copy of the same text and a list of 40 words from it (20 Dt, 20 non-DT) and were asked to translate them in text context. The translations were collected and compared with the underlined words in the texts. In other words, for each student, a comparison was made between the words students CLAIMED they did not know (out of the 40 selected ones) and the words they ACTUALLY did not know.

The comparison between translation lists and underlined words yielded three possible results:

(a) The learners translated some words correctly and did not underline them in the text.

(b) The learners did not know the translation of some and underlined them, i.e. they were sometimes aware of their ignorance.

(c) The learners misinterpreted some words and did not underline them in the text, i.e. they were sometimes unaware of their ignorance.

Three scores were given to each student:

(a) Error score: the number of errors on the translations list: for DT words and non-DT words.

(b) Awareness score: the total number of instances in which the learner was aware of his ignorance: in the case of DT words; and non-DT words.

(c) Reading comprehension score on the basis of his answers to comprehension questions.

The following grid illustrates how the information about the two first scores was coded.

Error Score

	DT words	non-DT words
No. of errors		

Awareness Score

	DT words	non-DT words
+ aware		
- aware		

3.3 Results

Error scores in DT and non-DT words were compared by a matched t-test. the number of errors in DT words was significantly higher than in non-DT words (1=1.67 p<0.05).

The number of +aware instances was compared with the number of -aware instances for DT words. The latter was significantly higher than the former (t=8.46 p<0.0005). This means that DT words are not recognised as unfamiliar more often than they are recognised as such.

The number of -aware instances was compared for DT and non-DT words. The frequency of -aware for DT words was significantly higher than that for the non-DT words (t=10.31 p<0.0005). This means that unawareness of ignorance is more frequent with DT words than with other words.

The relationship between awareness of unknown DT words and reading comprehension was measured by correlating the 'awareness' scores with reading comprehension scores. Pearson product moment correlation was .65, significant at .0001 level.

3.4 Discussion

The study compared DT and non-DT words with regard to:
(a) number of errors induces by each group of words.
(b) the extent to which learners were conscious of their ignorance of words in each group (the DT and non-DT).
(c) the relationship between awareness of unknown DT words and success in reading comprehension.

The results showed that
(a) Errors were more frequent with DT words.

Students were less aware of their ignorance with DT words than with non-DT ones.
There was a significant correlation between reading comprehension and learners' awareness of unknown DT words.
It can be argued, therefore, that deceptive transparency is indeed a factor which has an effect on comprehension.

3.4.1. DT Words And Reading Comprehension

As mentioned before, the correlation between awareness of DT words and reading scores was .65, significant at .0001 level, though correlations do not show cause-effect relationships between the variables, they do indicate the degree of common variance. In our case, it seems that about .4 of variance in reading could be accounted for by the degree of awareness of DT words. However, I will try to argue for a possible cause-effect relationship between the two.

When a foreign learner does not understand a word in the text, he has the following options: ignore it (if he considers it unimportant), look it up in a dictionary, ask someone who knows its meaning, or try to guess it from con-text. Many researchers of reading and pedagogues have emphasised the importance of guessing as a strategy of successful reading (Clarke and Nation, 1980; Van Parreren and Schouten-van Parreren, 1981; Nation and Coady, 1987).[7]

But an attempt to guess (regardless of whether it is successful or not) presupposes awareness, on the part of the learner, that he is facing an unknown word. If such awareness is not there, no attempt is made to infer the missing meaning. This is precisely the case with deceptively transparent words. The learner thinks he knows then and assigns the wrong meaning to them, distorting the immediate context on this way. But this may not be the end of the distortion process. The misinterpreted words will sometimes serve as clues for guessing words which the learner recognises as unknown, which may lead to larger distortions. Graphically, the process can be represented in the following manner:

awareness of ignorance of DT words -> misinterpretation of DT words -> distortion of immediate context -> using distorted context for further inter-pretation -> distortion of larger context. Here is an example of a distorted sentence resulting from misinterpretation of three words. The original sen-tence was:

'This nurturing behaviour, this fending for females instead of leaving them to fend for themselves may take many different forms.'

'nurturing' was confused with 'natural', 'fending' with 'finding', 'leaving' with 'living'. The result was the following:

'Instead of living natural life, natural behaviour, females and children find many different forms of life.'

For more examples of similar misinterpretation, see Laufer and Sim, 1985. One might wonder about the lack of syntactic resemblance between the original and the misinterpreted sentences. Such incongruencies in sentence structure show that students are willing to rely on lexical clues more than on syntactic ones; they are even prepared to impose a sentence structure on the idea they have already arrived at via lexis. If the learner had recognised 'nurture, fend, leave' as unknown words in the given example, he might have looked up or guessed their meaning and arrived at a different interpretation. 8

The suggested cause-effect relationship between awareness of DT words and reading comprehension can therefore be explained as follows. A better awareness of DT words is necessary for attempting to find their meaning. Such an attempt will result in a larger number of correctly interpreted words. These will in turn reduce the density of unknown words. Such reduction will result in an increase in contextual clues which are necessary for outstanding additional new words. This understanding will increase the total number of correctly interpreted words. A larger number of known words will be an asset to global comprehension of the text.

3.4.2. DT Words And Vocabulary Testing

One way of checking the vocabulary size of a learner is by giving him a list of words (real and non-existing) and asking him to reply 'yes' to every known word and 'no' to every unknown one. (E.g. Meara and Buxton, 1987). The calculation of the score takes into account the number of real words identified as familiar and the number of 'identifications' of the nonsense words. The more nonsense words are claimed to be known, the lower is the credibility of the subject. However, if the text includes many DT words among its items, the learner may be making 'yes' responses to unknown words not be-cause of low acceptance threshold, but due to genuine unawareness of his ignorance. How this might affect the test score is not clear. It could be simpler to exclude such words from the test than to find a suitable correction formula.

3.4.3. Errors In DT Words And The Mental Lexicon

The study did not attempt to investigate the characteristics of the mental lexicon. However, some of me errors caused by DT words can provide some information about the organisation of L2 words in the memory. Investigations have indicated that while in the native speaker's mental lexicon there are strong semantic links between the words, the connections between words in additional languages are primarily phonological. (See reviews in Fromkin, 1981; Soudek, 1982; Hatch, 1983.) Synformic errors, particularly confusion of phonologically similar words (cute/acute, valuable/available), provide additional evidence for such organisation. In searching for the right word, the learner selects its neighbour in the lexicon which sounds similar, but is erroneous.

Another interesting issue that has been debated is whether words com-posed of root and affixes are stored as single units or whether the stems and affixes are stored separately (Murrel and Morton, 1974; Taft, 1984). Errors in the words with a deceptively morphological structure seem to support the latter (lexical decompositions hypothesis). The learner might store the prefix 'dis-' separately and therefore interpret 'discourse' as 'without direction', combining what looks like two separate units if meaning. Also the confusions of morphological synforms (industrial/industrious, economic/economical) might result from storing the suffixes separately and substituting one by an-other.

3.5 Conclusions

The purpose of the present study was to investigate problematicity of DT words. It was found out that the frequency of errors in DT words was higher than in non-DT words; that learners' awareness of DT words as un-known items was lower than that of non-DT words; that there was a significant relationship between awareness of DT words and reading comprehension. It was argued that unawareness of DT words could lead to local and global misinterpretations; that the presence of such words in vocabulary size tests might interfere with the results; and that the errors induced by DT words could provide some information about the characteristics of L2 mental lexicon.

Notes

[1]This distinction was suggested by Takala (1985). However the three types of issues are not unrelated. Studies of psychological and quantitative nature may have pedagogical implications. Some questions belong to more than one area
e.g. how many words does the learner need to know in order to understand an authentic text? (quantitative and pedagogical).

[2]The term 'word' will be used in the sense of lexical item, or a unit of meaning. Thus, an idiom will be considered one 'word'. Each meaning of a homonym is considered a separate 'word'.

[3]We are not concerned here with clues provided by the sentence/text context.

[4]This is an actual misinterpretation provided by a student.

[5]The level of English at the end of the Israeli high school approximates that of the Cambridge First Certificate of English.

[6]One half of the subjects got a standardised test with multiple choice questions; the other half - a teacher made tests with open ended questions.

[7]The issue of guessing is not uncontroversial (see, for example Benssousan and Laufer. 1984; Ostyn et al., 1987).

[8]I do not claim that the correct meaning of these words would lead to a flaw-less interpretation of the sentence, but it would contribute to a better under-standing.

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VOCABULARIES IN THE READING PROCESS

Cay Dollerup, Ester Glahn, Carsten Rosenberg Hansen
Copenhagen, Denmark

Using a study of Danish freshman undergraduates' vocabularies as a springboard, the paper explores and discusses a number of current assumptions about vocabularies in the mother tongue and in foreign language teaching. The conclusion is that as far as reading is concerned, a reader's vocabulary is part of the process of reading: it is a function of the texts and its contents, of the reader's reading strategies, and of the reader's more or less stable "word knowledge". In the reading of a specific text there is a constant interplay between these factors which suggest that a vocabulary in reading is "fluid". Pedagogically, this theory implies that there should be a deliberate teaching of reading strategies in addition to other methods.

1. Introduction

The purpose of the present article is to call attention to a number of shortcomings in much thinking about the "size of vocabularies". It proposes that it would be sounder and more in keeping with reality to assume that vocabularies in reading are fluid and depend on the text read, on the reading strategies employed, and on the words the readers feel they know.

Vocabularies may differ in size and composition for a variety of reasons. In the following discussion we look at the effect of three factors on a learner's vocabulary size. These factors are (1) frequency, (2) experience with the language, and (3) the interaction between a reader and a text.

It is taken for granted that among native speakers of English "most people know all the very common words" (Anderson and Freebody, 1981: 101);

and as very frequent words make up a large percentage of the running words in text (see Anderson and Freebody, 1981; Nation, 1983), it is no surprise that frequency and frequency lists are taken into account in language teaching. For example, Thorndike and Lorge (1944) recommended what frequency bands the teachers should concentrate on at different grades for teaching native speakers of English. The same idea has been applied in the teaching of

English as a foreign language with frequency based word lists being used in course preparation.

The very frequent words constitute a "core" (or "store") of words which all students, native speakers and foreign learners must learn and master. This basic "core" serves as a stepping stone for branching out into more specialised vocabularies concerning our hobbies, interests, and backgrounds.

2. The "core assumption"

The "core assumption" is illustrated graphically by Hansen and Stetting (1977):
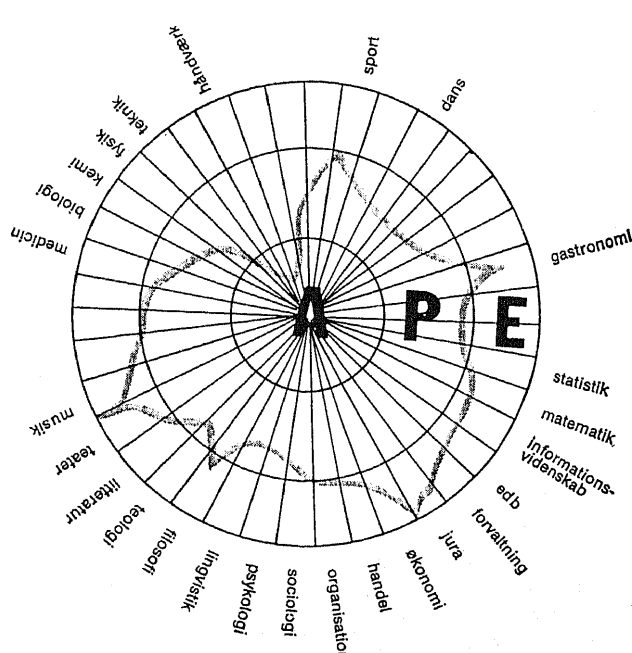

Figure 1.

The figure is an *abstraction*: the outer ring shows the total linguistic ca-pacity in the population; and the shading indicates the vocabulary of a lawyer ("jura") who is a specialist (with an E(xpert) language) on music and fine foods ("gastronomi"). His generalised specialist language (P) reveals his interest in sports and philosophy and his total lack of interest in handicraft ("Handvaerk"); and, of course, he has mastered the general language (A), i.e. the syntax and the vocabulary of everyday communication, the "core" which we all know.

The "core assumption" is widespread among teachers - probably because their familiarity with a language is better than their students'; it is interesting that Brutten (1981) found that teachers were more inclined than students to

pay attention to frequency when they identified the words they thought might be obstacles to comprehension.

Using frequency bands as our yardstick we can transfer the "core as-sumption" into two curves, one showing the vocabulary of a foreigner with a large English vocabulary, and another one with a fairly small vocabulary, as follows:

the

have

the fre-
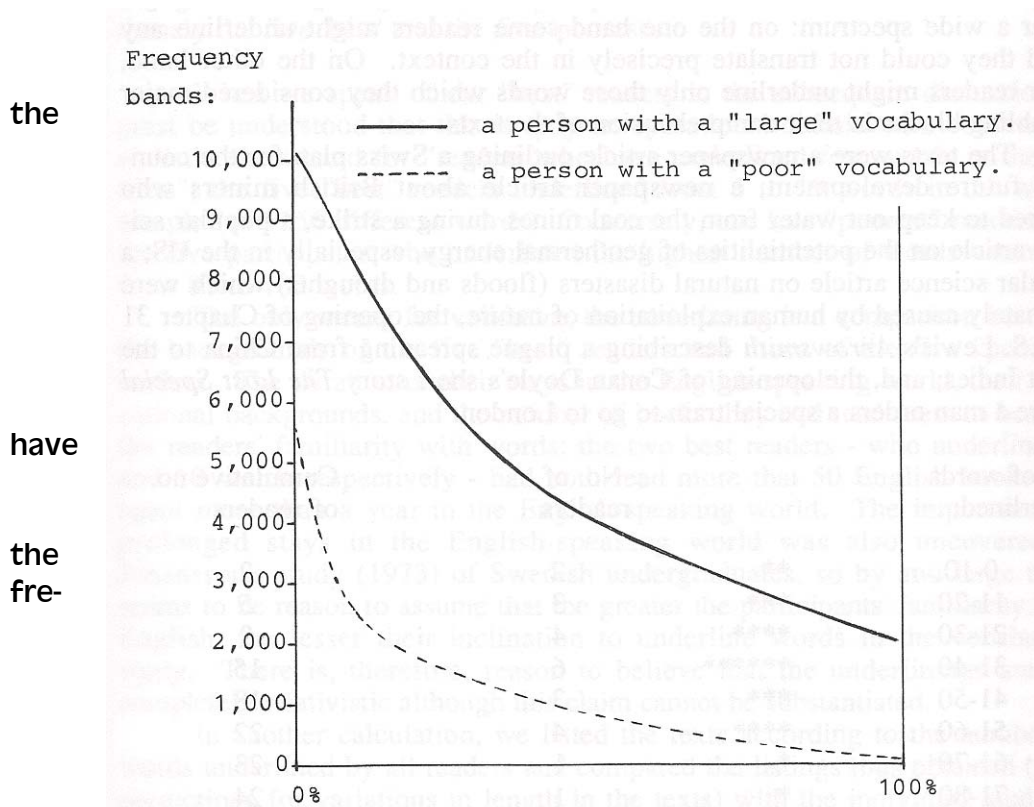
Figure 2: Curves showing English vocabulary of two foreigners, against frequency bands

Studies shown a relationship, particularly at level of high quency words, between vocabulary knowledge and frequency of occurrence.

When we are dealing with large groups of learners, a high frequency word unknown to some persons with large vocabularies should logically be unfamiliar to more readers with small vocabularies. We must therefore assume that every time persons with large vocabularies do not know a word, even more people with small vocabularies will find the word unfamiliar.

In order to investigate the core aspect of vocabulary knowledge, thirty volunteer freshman undergraduates at the Department of English at the University of Copenhagen participated in the vocabulary study. All participants answered four questions on their backgrounds. In addition, the partici-

pants in the vocabulary study were given six tests from the "Sprogtest" programme. The questionnaire, the instruction, and six tests (whose order was rotated) were handed out in envelopes.

The instructions requested the undergraduates to underline all the words that they did not know, or did not understand from their immediate experience of me text. We were aware that me instruction was ambiguous and might cover a wide spectrum: on the one hand some readers might underline any word they could not translate precisely in the context. On the other hand, other readers might underline only those words which they considered major stumbling blocks in their comprehension of the texts.

The texts were a newspaper article outlining a Swiss plan for the country's future development, a newspaper article about British miners who worked to keep out water from the coal mines during a strike, a popular science article on the potentialities of geothermal energy, especially in the US; a popular science article on natural disasters (floods and droughts) which were ultimately caused by human exploitation of nature, the opening of Chapter 31 in C.S. Lewis's *Arrowsmith* describing a plague spreading from China to the West Indies; and, the opening of Conan Doyle's short story *The Lost Special* where a man orders a special train to go to London.

No. of words underlined:		No. of readers	Cumulative no. of readers
0-10	* *	2	2
11-20	* * *	3	5
21-30	* * * *	4	9
31-40	* * * * * *	6	15
41-50	* * *	3	18
51-60	* * * *	4	22
61-70	*	1	23
71-80	*	1	24
81-90	* *	2	26
91-100	*	1	27
101-110			
111-120			
121-130	*	1	28
131-140	*	1	29
141-150			
151-160			
161-170			
171-180			
181-190	*	1	30
191-200			
	* = 1 reader		

Figure 3

Distribution of readers according to the number of different words they underlined in the whole sample.

Using the data in Figure 3, two groups of readers were chosen for analysis, namely the five 'best' and the five 'poorest'.

When we speak of our "best" readers in the subsequent discussion, it must be understood that this is only an operational definition, a convenient, stylistic short-hand for "readers who have underlined few words in the six texts"; the five "best" readers underlined from 5 to 19 words in the whole sample (of 1156 different words). Conversely, our five "poorest" readers are the five participants who underlined the highest number of words - namely, from 87 to 183 words.

The only means for validating the underlining is a comparison between the backgrounds of the five "best" readers and those of the five "poorest" readers. The duration of their stays in the English-speaking world, their educational backgrounds, and the number of books they had read seem to bear on the readers' familiarity with words: the two best readers - who underlined 5 and 10 words respectively - had both read more that 50 English books and spent more than a year in the English-speaking world. The importance of prolonged stays in the English-speaking world was also uncovered in Johansson's study (1973) of Swedish undergraduates, so by and large there seems to be reason to assume that the greater the participants' familiarity with English, the lesser their inclination to underline words in the vocabulary study. There is, therefore, reason to believe that the underlinings are not completely relativistic although this claim cannot be substantiated.

In another calculation, we listed the texts according to the number of words underlined by all readers and compared the listings thus obtained (with corrections for variations in length in the texts) with the individual students' rankings. The readers were in agreement about which texts were "most difficult". We interpret this as an indication that readers used some of the same criteria for underlining the words, and individually did so consistently throughout the texts.

3. Discussion: the readers' vocabularies

3.1 The "Core assumption" and the Frequency Bands

In this discussion we use the Thorndike and Lorge frequency bands. Although there are major agreements between different counts in the highest frequency bands there are also variations in the order of the words in high frequency bands (e.g. Harris and Jacobsen, 1973; Dinnan, 1975).

Our choice of Thomdike and Lorge was determined by its comprehensiveness i.e. it reaches far into the low-frequency bands, which therefore opens up the possibilities of including "rare" words in the discussion. Nevertheless, we think that the identity of the frequency count used is actually immaterial to our conclusions on questions of theory and principles.

It is generally accepted that the less frequent a word is, the smaller the chance that readers will know it. We can check this assumption with our data, ranking all words underlined according to the number of readers who under-lined them.

A listing of one random word in each group looks as follows (with an indication of the frequency band in parenthesis):

1 reader: *slope* (2-3,000).
2 readers: *emergency* (3-4,0000).
3 readers: *hydraulic* (10,000+).
4 readers: *competitive* (6-7,000).
5 readers: *sprawling* (7-10,000).
6 readers: *inconvenience* (6-7,000).
7 readers: *sinister* (7-10,000).
8 readers: *transpire* (10.000+).
9 readers: *crimson* (3-4,000).
10 readers: *pitching* (2-3,000).
11 readers: *spine* (5-6,000).
12 readers: *magma* (not listed i.e. 30.000+).
13 readers: (a) *stoop* (2-3,000).
14 readers: *sewer* (7-10,000).
15 readers: *immortelle* (not listed).
16 readers: *parched* (7-10,000).
17 readers: *pods* (10,000+).
18 readers: *buccaneers* (10,000+).
19 readers: *molten* (6-7,000).
20 readers: *semi-arid* (arid: 7-10,000).
21 readers: *scuppers* (20.000+).
23 readers: *corroborate* (10.000+).
24 readers: *sedateness* (10,000+).
27 readers: *incandescent* (10,000+).
29 readers: *seedie* (not listed).

In general, the list corroborated the "core assumption": few readers are unfamiliar with frequent words, and more readers with infrequent words.

3.2 The "good" readers

We also posited that if the "core assumption" holds good, there must be more "poor" readers than "good" readers who will be unfamiliar with a spe-

cific word: every time a word has been underlined by "good" readers, we must expect it to be underlined by even more "poor" readers.

Our five best readers had underlined 42 different word types 72 times. Only 2 of the 42 words failed to follow the pattern shown above: in *The Plague* two "good" - but no "poor" - readers underlined the word "lather";

and four "good", but only three "poor" readers underlined "careened". With these exceptions, the results also strengthen the core assumption.

The list of the words unfamiliar to our "best" readers deserves a closer scrutiny; in parenthesis we list the number of "good" readers that found any given word unfamiliar:

Switzerland:	*sedateness* (1).
Miners:	*shotfirers* (1); *combustion* (2).
Energy:	*fissures* (1), *harness* (1), *brine* (1), *crud* (up) (1), *feasible* (1), *sulfer* (1)', *ample* (2), (non)*corrosive* (2), *molten* (2); *fiscal* (3), *rudimentary* (3).
Disasters:	*devastating* (1), *prodigious* (1), *squander* (1); *parched* (2), *semiarid* (2), *rampaging* (2); *inundated* (3).
The Plague:	*clattering* (1), *pods* (1), *hibiscus* (1), *buccaneer* (1), *berth* (1); *boisterously* (2), *sewer* (2), *lather* (2), *incandescent* (2), *scuppers* (2), *immortelle* (2); *careen* (4), *seedie* (boy) (4).
The Special:	*stoker* (1), *ascertain* (1), *stoop* (1), *spine* (1), *dispatch box* (1); *oscillation* (2); *corroborate* (4).

Most of these words are rare: "ample" - the most common and frequent word underlined by our "best" readers is in the 3-4,000 word band;

"combustion" and "molten" in the 6-7,000; and "parched" in the 7-10,000 word band. The majority of the unknown words are in the 10-20,000 word band, with "scuppers" and "rampaging" in the 20,000+ band. And, as mentioned, "immortelle" and "seedie (boy)" are not listed by Thomdike and Lorge at all.

Conversely, if the words in the texts serve as the point of departure the five "best" readers had no problems with numerous words in the 10,000+ range, e.g. *collated , deforestation, ecological, geological, hectare, jumbo-jet (set), nuclear, reforest, technological, savanna(h), round-the-clock, supple-mental, unsparing, thermonuclear, overblown, supercargo*.

Some of these words are undoubtedly more common today than when the corpus of the Thomdike and Lorge count was written e.g. *nuclear*. Even so, the best readers know many highly infrequent words: their vocabularies are very large, and not confined to words from their own specialist areas. It is true that some of these words, e.g. *hectare, savanna*(h) also exist in Danish.

But if we uncritically accepted that Danish readers would know English words which looked like Danish ones we would miss a point: these words are not very frequent in Danish either, so the impression that some readers have large receptive vocabularies is not weakened.

3.3 The five "poorest" readers

We would expect our poorest readers to know only "core-words" and then only odd words above a certain boundary (which would, in turn, depend on the readers' knowledge of English). As mentioned, our "poorest" reader underlined 187 words. Among unfamiliar words were *current* (1-2,000 word band); *acknowledge* in the 3-4,000 word band; *complex* (5-6,000) etc. But curiously, words like *available*, *code*, and *economy* (3-4,000 word band); *dilemma* (10,000+); *depopulate* (20,000+), and many similarly infrequent words were not underlined.

3.4 All thirty readers

Affair, bright, forest, c(ent), and *guard* in the 0-1,000 word band were each underlined by only one reader. So were *bore, bound, current, firm, flat* in the 1-2,000 word band. In the 2-3,000 band *attach, commit,* and *depth* were likewise unknown to one reader each - only application was unfamiliar to 5 readers. In the 3-4,000 word band *apparent* was unknown to one reader;

two readers underlined *available, contribution, decrease, emergency*: and no less than 12 readers indicated that ample was unknown to them. However, if we look at the texts in another way, the list of words from the low frequency bands unfamiliar to only one of the thirty participants looks as follows:

3-4,000 word band: *amaze, chapel*
4-5,000: *barrier, cargo*
5-6,000: *banana, breathless, complex*
6-7,000: *balcony, bamboo*
7-10,000: *breakdown, annual, conservation, comical, dependence, first-class, fragile, market-place, phenomena, rainfall, sensational, ski, skipper, smear, spokesman, spontaneous, underlying, urban.*
10,000+: *bazaar, centre, dilemma, efficiently, ensure, exotic, fantastically, geyser, inefficient, inexplicable, middle-aged, monsoon, deforest, depopulate, geological, nuclear, overblown, reforest, supplemental, technological, periodically, physique, potentially, seasonal, second-class, turbine, upstream, washerwoman.*
30,000+: *hectare, round-the-clock, breakthrough …*

4. Discussion

The "core assumption" appears to hold good as very few Danish readers of English at an advanced level met with unfamiliar words in reading below the 3-5,000 word boundary.

The exact boundary however, can not be defined. Even if we had es-tablished it, we could not claim that it would apply to all learners of EFL: in other words, we cannot and will not argue that all learners of EFL must know any specific number of words in order to manage.

In addition, there is an equally important result: many undergraduates appear to know even infrequent words, and this cannot be explained by simply combining the "core assumption" with frequency bands. Many of me words discussed would be very infrequent in any general frequency count of the English language.

5. Vocabularies and reading strategies

The "Sprogtest" programme comprises other studies than the vocabulary study, including an introspection study where 28 other readers - 7 undergraduates and 21 students in the modem language stream at the gymnasium ("high school') - reported on their reading and test-solving techniques during the reading (Dollerup, Glahn and Rosenberg Hansen, 1982).

This particular study leads us to suggest that the "core assumption" should be supplemented with reading and decoding strategies. This would explain why our readers had fewer difficulties with low-frequency words than expected.

These strategies include the following:

1.Etymological, morphological, and (transparent) semantic decoding using

1a.Components of words they know from another language (mostly Latin): Text: "*Decreasing the Inconvenience* "Reader's comment : *I don't know how to translate 'decreasing'. Then I think of Latin 'convenio'*...

1b.Components from English words familiar to the readers.

1c.A knowledge of a Danish word which looks more or less like the one read: for example, the English word flood (inundation) was often taken to mean 'river' which translates as Danish "*flod*" (a so-called 'false friend').

2.Translation into Danish. The speech cited at la. illustrates this strategy which applies to both passages and words (compounds).

3.Context: e.g. "*I have seen these words before, but I do not know what they mean: when it says 'the first carriage was solely ...' this must mean 'only'*.

I go for the first answer to the multiple-choice question because I skim the text. It says that the carriage has only first and second class compartments."

We suggest that these and other strategies provide an explanation why the students' know low-frequency words in the vocabulary study.

One last point - also mentioned by Anderson and Freebody '(1981) and Nation (1983) must be made, viz., that the concept of knowing a word is problematic. From our sample, it seems as if one strategy is to get a hazy idea of what a word means, assess that it is fairly unimportant, and then accept this vague impression as "familiarity"; thus only half the readers underline the word *immortelle*, presumably because it occurs in the sentence: "the immortelle that fills the valleys with crimson". The sentence signals that *immortelle* is a kind of red large flower, and in the wider context, it serves only to give flavour to the description of a tropical island.

6. Concluding remarks

We suggest that in reading, we are not dealing with a static entity when we speak about a vocabulary but a changing and fluid mass.

There is a core of words, a word knowledge, which centres around the I most frequent words in the language and the size of which may vary with readers' personalities and backgrounds. This word knowledge is, we suggest, relatively - but not completely - stable, and its size can be estimated, with the limitations imposed by the methods used and the definitions of vocabularies

employed. *But this word knowledge is only part of a reader's receptive vocabulary.*

Another part of the vocabulary consists of *the strategies that individual readers use for decoding words and for gaining an overall comprehension*. This has been touched upon by others. Thus Arnaud (1984) cites Denninghaus as having used the term "potential vocabulary" about words hypothetically known to learners. Nagy and Anderson (1984) suggest that knowledge of in-frequent words increases with exposure to language, and refine this in Nagy, Herman and Anderson (1985) to an ability to learn by context. We wish to stress, however, that (a) the strategies are not identical with a learning process but that the words are understood and known in one particular context and perhaps only momentarily, and (b) that this applies to reading. We do not preclude that this approach applies to other situations as well, but leave this problem for others to solve.

A third component of a vocabulary is the text which is actually being read: it is only in the reading of a text that the strategies and the word knowledge can interplay. To be explicit: there are words which an individual reader will meet with and immediately understand only once in a lifetime.

In summary, readers' vocabularies in the reading process consist of (a) a "word knowledge store", (b) strategies for decoding words, and (c) the special

linguistic context. It implies that individual vocabularies in reading exist instantaneously, and that they are, in effect, fluid entities which change every time they are generated by the reading of specific texts. *Vocabularies differ not only in time but also from text to text with the same reader.*

The following sketch indicates the nature of individual receptive vocabularies in reading.

Figure 4

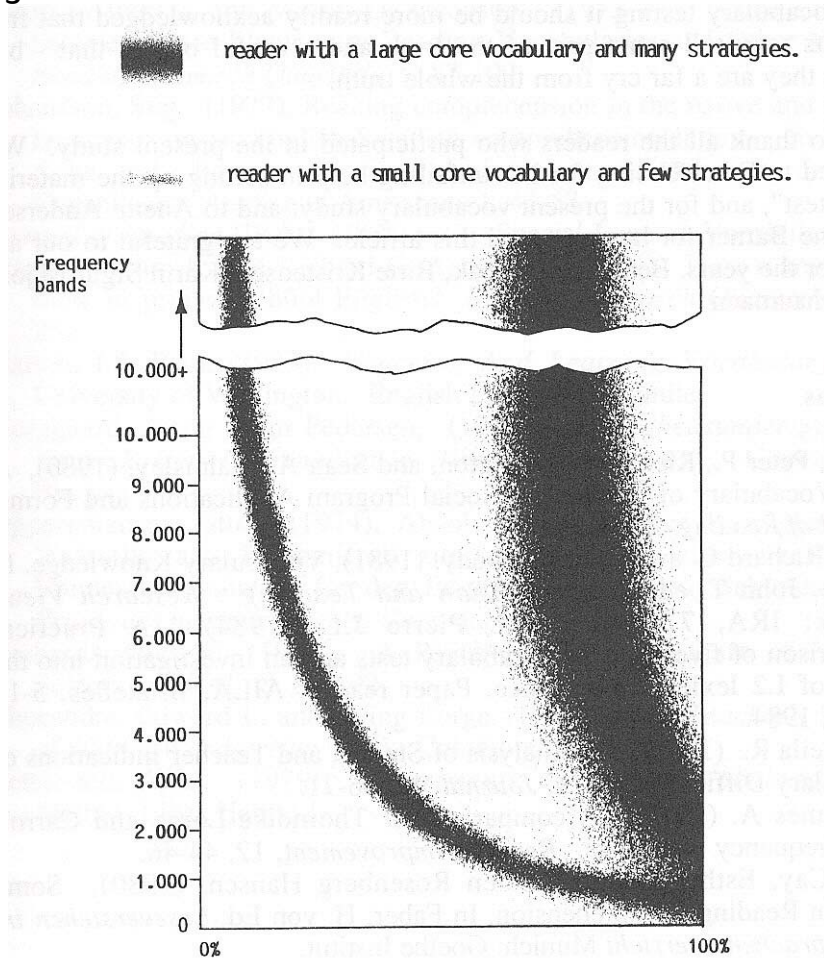In this Figure the left hand column indicates the frequency bands. It includes all words in a specific language, even those not listed in the most comprehensive dictionaries: therefore we leave the upper limit open (which does not mean that vocabularies are infinite).

In adding the readers' reading and decoding strategies, we suggest that poor readers with few strategies at their disposal will know fewer words in

any given frequency band than the good readers; yet they will still know some very rare words.

The results indicate that the importance of vocabulary coping strategies should not be overlooked; there should be a conscious instruction in the rules of word formation and word derivation. Most of all reading strategies should be taught as an integral part of these activities.

In vocabulary testing it should be more readily acknowledged that frequency lists may tell some part of the truth and a useful one at that - but sometimes they are a far cry from the whole truth.

We wish to thank all the readers who participated in the present study. We are indebted to Ethel Ussing for her unfailing help in setting up the material for "Sprogtest", and for the present vocabulary study; and to Anette Andersen and Marlene Barner for having typed this article. We are grateful to our assistants over the years, Benedicte Holbak, Birte Kristensen, Karin Sigurdskjold and Eva Schaumann.

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THE LEARNER AS WORD PROCESSOR

Kirsten Haastrup The Copenhagen Business School

1. Introduction: Learners' Intake of New Words

It is widely acknowledged that input plays a central role in com-munication as well as in learning. However, we need a precise characterization of the way in which learners interact with input, in other words of the processes involved in comprehending input. What studies we have often relate to learners' acquisition of syntax (Færch/Kasper, 1986), so this paper will take us in a new direction by focussing on lexis.

Processes involved in taking in new words have recently been studied under the heading of lexical inferencing procedures (Haastrup, forthcoming). The present paper draws on this empirical study of the way in which Danish learners of English infer the meaning of unknown words in an L2. An example will clarify the approach adopted (text 1 below). A pair of Danish learners, A and B, are discussing what the term *affluence* means in the context "In the rich world many diseases are caused by *affluence*". Their discussion in Danish has been audio-recorded and transcribed to constitute a thinking-aloud protocol; text 1 is an extract of such a protocol.[1]

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[1] The sentence containing the word affluence is from a text about health and disease in the Third world as compared to the Western world. The two-page text includes 25 test words that were proved to be unknown to the informants by means of pretesting.

Informants were thinking aloud in Danish, so the reader who is strud.by clumsy unEnglish phrases in the protocols should remember that she is dealing with spontaneous speech. Moreover, in the translation no attempt has been made to make it more elegant. A word-by-word translation has been preferred as the protocols are intended to reflect informants'train of thought.

While informants were thinking aloud, an assistant and I listened in from an adjoining room making notes. Immediately after the thinking aloud session, informants were separated and interviewed individually. This gave us a chance to probe into points from the first session that need clarification. The study is thus based on two introspective methods: pair thinking-aloud and individual retrospection. (For a discussion of these methods see Haastrup 1987).

Text 1

A affluence influence
B ignorance
A well I think it is abundance - you know - Latin fluens
B perhaps
A yes what is fluid that * overflows - it could be abundance don't you think
B affluence (hesitantly)
A I'am sure that is it - you know heart diseases and the like - this is what I think

final agreement: abundance
 * Danish has a noun, *overflod*, which means abundance

  While learners discuss they have a text in front of them which contains a number of unknown words (one of which is affluence). Two groups of learners are involved in the study, one with relatively high and one with relatively low proficiency in English[1].
  Inferencing is typically related to text inferencing, and my definition of lexical inferencing procedures is modelled on that.

The process of inferencing involves making informed guesses as to the mean-ing of a word in the light of all available linguistic cues in combination with the learners' general knowledge of the world, her awareness of the co-text and her relevant linguistic knowledge. (Færch/Haastrup/Phillipson, 1984: 150)
Just as I view inferencing from a unusual perspective, the lexical, I shall view communication and learning from a neglected one, the receptive. The key procedure of hypothesis formation and testing has traditionally been studied in relation to learners' production of target language forms; it is considered important, however, not least for language pedagogy, that learning procedures are demonstrated in relation to reception, too. This can be done using the extract from the protocol above (text 1) where we find examples of learners who in relation to a comprehension task (or receptive task) form a number of hypotheses about word meaning (influence, ignorance, abundance).
The fact that the learners did not know the word before they began the inferencing task, but have now arrived at word meaning (they finally agree on abundance) entitles us to talk about intake for communication, though not in-take for learning (Færch/Kasper's distinction, 1980). The latter would require that we tested the learners' retention of the word at a later stage. Like many others (notably Gass, 1986, and Chaudron, 1985) I prefer to   envisage   intake

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[1] The low-proficiency group have received 4-5 years of English instruction, and the high-proficiency group 6-7 years. The English proficiency of the two groups was tested and the difference was found to be statistically significant. Each group consist of 31 informant pairs.

not as a product but as a process, moreover, as a process consisting of many phases leading from the presence of a certain input through the perception of the input to the internalization of new structures and rules from this intake (Chaudron, 1985:5). Whereas the above terms from Chaudron reflect mainly on syntax (structures and rules), I want to focus on vocabulary, emphasizing that this paper deals with me way in which word meaning is first arrived at, i.e. the first phases of intake for communication.

Language learning models have little to say about vocabulary learning, biassed as they are towards other linguistic levels (Færch, 1986). Hopefully, this paper will add to our knowledge about vocabulary learning - on a modest scale - by pointing to some characteristic features of learners' processing of words.

2. From Formal to Semantic Similarity

One feature that has created vivid interest among vocabulary re-searchers is the question of formal and semantic similarity, as we know it for instance from word association studies (Meara, 1978). Using a broad definition, semantic similarity/equivalence refers to two words having approximately the same function and meaning; this may often though not always co-occur with formal similarity at the levels of orthography/phonology, for instance. According to current views, learners proceed along a continuum leading from the use of formal similarity only to the use of formal+semantic similarity (Ringbom, 1983). My study of the cues Danish learners use in their inferencing attempts are largely in agreement with this. Moreover, I find that my L group (learners with low proficiency in English) are often attracted by formal similarity (without a semantic one) between an L2 word (English) and an LI word (Danish):

Test word	*Danish word used as cue*
	(with English translation)
squalor affluence	kvaler (agony)
affluence	influenza (influenza)
pronounced in Danish	
curative	konstruktive (constructive)
precipitating	principielle (as to principle)

When my H group (learners with high proficiency in English) are trapped, this is often due to similarity between the L2 test word and another L2 word:

Test word Utterance from protocol containing L2 cue

precipitating   why don't they say participating - we know that

squalor	squalorship - it has something to do with school
squalor	quarrel
	why?
one knows only a limited number of words	with a q you know
bouts of diarrhea	about boots

Obviously, learners see similarities where we least expect it, and beginning learners' negative transfer is found to be Li-based, whereas that of the more advanced is L2-based. Such findings are in accordance with what is known about clang associates in word association studies (Meara, 1978), errors in L2 reading research (Cziko, 1980) and LI- and L2-based communication strategies (Haastrup/Phillipson, 1983). Results from these areas suggest that the beginning learner is biassed towards the LI, but as she progresses in the L2, she develops semantic, L2-based associative networks.

Like Ringbom (1987) I believe we do well in letting learners understand that lexical transfer is overwhelmingly positive; at least when the LI and the L2 in question are closely related, as Danish and English are. However, in line with Kellerman's research on learners' psychotypologies, it is important to acknowledge that what matters is learners' perceived distance and perceived similarity (Kellerman, 1977). This requires that we work with learners' linguistic awareness assisting them in striking a balance in their use of transfer:

"To transfer or not to transfer - that is the question".

3. "A Word Is a Word" - or Is It?

The next question addressed is how learners go about processing words like *indiscriminately* (with many linguistic cues to meaning: in-, *discriminate*,-ly), or *waver* and *bouts* (without linguistic cues to meaning)[1]. In my attempts to characterize learners' word processing, the parameters of holistic versus analytic as well as top-ruled versus bottom-ruled have proved useful and will be discussed below.

Language learning theory is paying increasing attention to *holistic* learning, including the learning of chunks as unanalyzed wholes (Hatch and Hawkins, 1987). In relation to learner production examples of this are "howyoudoing" and "I *pickyaup* 3.00, okay"). Such chunks are said to be

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[1] The 25 test items were selected through pre-testing so as to include words with and without linguistic cues. The criterion for referring words to the first category is that, in the pre-testing experiment, university students of English used linguistic cues when guessing the meaning of these words; for the test item insatiable, for instance, many of them used the prefix in-, the words satisfactory and satisfaction, and the suffix -able. The test item squalor is an example of a word without linguistic cues.

The items with linguistic cues include some with intralingual cues (English), interlingual LI cues (Danish) and interlingual cues from foreign languages other than English, notably German, French and Latin.

characteristic of the very first phases of L2 learning and imply that learners are unable to analyze e.g. "howyoudoing" into its constituent parts. The expression is not transparent to them, and they cannot combine its parts to form new expressions. In other words, they cannot work creatively.

The lexical inferencing data indicate that in learner reception, too, there is a large amount of holistic processing. This is particularly the case with the
L group, but is also found in the H group. Text 2 illustrates holistic processing of the word insatiable.

Text 2
Test word in context: "... a king called Chaka. He was a clever military leader with *insatiable* political ambitions. He won most of southeastern Africa ..."

A   great political ambitions
B   no not great - not just great - you know enormous - no - I really don't know
A   it must be great
B   do you think so
A   yes great ambitions-yes-that fits the context you see okay
B   okay

final agreement: great

As the thinking aloud protocol shows, informants make no attempt at analyzing the word, no doubt because it is not transparent to them.
To complete the picture, we quote a protocol where another pair of informants think-aloud about the same word.

Text 3

(Underlined elements were stressed by the informant).

A   unappeasable or something like that - unappeasable political ambitions
B   what does satire mean - it is something you laugh at isn't it
A   I think it has to do with satisfaction and that means *insatiable* has to do with it not being satisfactory - and - able that is always something – quite basically something that can't be done - or something that *can* be done -
B   you're right - that is it

final agreement: not to be satisfied
(Danish: utilfredsstillede)

This clearly analytic processing is characterized by the learners' discriminatory powers, i.e. their ability to "see through" me word, and form a hypothesis about word meaning based on the cues: *in-, -able,* and *satisfy.*

The second useful parameter for describing word processing is *bottom-ruled* and *top-ruled*[1]. These are well-known concepts from the area of comprehension at sentence and text level, they are essential in reading research for instance. So it is only natural that they should apply to word-level processing as well. A hierarchy of cue levels was established (fig. 1) with "the top" constituted by context and semantics, and "the bottom" ranging from the smaller units (orthography/phonology) to larger (collocations), reflecting an in-creasing meaning focus as you move upwards.

Top level	context
	semantics
Bottom Level	collocations
	syntax
	word class
	word origin
	lexis
	morphology
	orthography/phonology

Fig. 1: Hierarchy of cue levels

The hierarchy of cue levels grew out of the data and should be illustrated by these[2]. Text 4 exemplifies top-ruled processing of the word *contributory.*

Text 4

Test word in context: "A serious problem is malnutrition. Many factors serve as precipitating and *contributory* causes to this."

A   this word contributory means no doubt
B   contemporary
A   no - contribute has to do with offering something - that means it is

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[1] My reason for not using the well-established terms top-down and bottom-up processing is that they were coined at a time when you conceived of serial, unidirectional processing. The suggested terms "-ruled" is considered an improvement, since it rejects the concept of seriality and is in accordance with the prevailing paradigm of interactive processing.

[2] The label context from the top level includes knowledge of the world as well as co-text. The names of all the other levels are borrowed from linguistic analysis. It should be noted, however, that these names and the levels of analysis they point to are chosen and used in a specific way. The relationship between "semantics" and "lexis" is discussed in note 6.

B	I think it is contemporary
A	(translates: "many factors serve as - and contemporary causes to this") this does not sound right - it must mean assisting in-to contribute something - offer some thing as a donation
B	that fits in

final agreement: helping to bring about
(Danish: medvirkende)

Informants are said to activate "the top" in that they draw on context in the form of co-text (the translation where they substitute the test word with contemporary. Moreover, they associate to the word contribute (level of lexis) using it as a starting point for meaning considerations (level of semantics) that result in the hypothesis assist in. A hypothesis based on a bottom-level cue is thus taken all me way to "the top", and pains are taken to test this hypothesis against the co-text, i.e. checking whether the proposal makes sense.

In contrast to this, text 5 below offers an example of bottom-ruled processing. It is the same test word, but a different pair of informants.

Text 5

A	I can't really see what this is - k ntr - what does it say
B	yes that's it
A	this one has something to do with *country - I think - con - no it isn't spelt like that
B	no - concerning the country

final agreement: concerning the country
(Danish: landlige)

*The Danish word is *land*, meaning *country*. The retrospective data make it quite clear that informants use phonological similarity as a cue.

In this case informants do not consider whether their hypothesis "concerning the country" is compatible with context, meaning that it can sub-stitute for contributory in "contributory causes"[1].

Having used the last two texts based on the item contributory (4 and 5) to illustrate the contrast between top-ruled and bottom-ruled processing, it

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[1] In text 4 the informants used a target language from *contribute* (level of lexis) as a starting point for meaning considerations, "assisting in" (level of semantics). To let lexis and semantics interact in this way is sensible when inferring word meaning. Not all L2 informants do this, however. They stop short at the lexical level. For *contributory*, for instance, a protocol ends with the utterance "I wonder what contributory means - do you know". Here informants rely exclusively on the language system, i.e. the bottom level without taking the risk of attributing meaning to the word. It is data such as these that - for my particular purpose - let me separate lexis from semantics in the hierarchy of cue levels (fig.I).

should be noted that they are both examples of analytic processing. The two parameters introduced above, holistic versus analytic and top-ruled versus bottom-ruled thus partly coincide.

From research into comprehension, notably reading research, we know that ideal processing is interactive (see for instance Flores d'Arcais/Schreuder, 1983). This implies that informants use top cues as well as bottom cues and relate these to each other (cf. fig. 1: Hierarchy of cue levels). Moreover, effective processing is top-ruled, which means that a hypothesis based on bottom-level cues should always be tested against "the top".

The general statement that ideal processing is interactive and top-ruled requires modification. We cannot say which is the best way to process a word because processing is task specific. Some types of words, exemplified by *squalor* and *bouts* in my study, offer no linguistic cues to meaning, which means that the best one can do is to rely on cues from the co-text or one's knowledge of the world. This is what many informants do when they hypothesize that *squalor* means poverty in the context "People are killed by the conditions they live under, the lack of food and money and the *squalor*". According to their knowledge of the world, towns in Africa are characterized by not having the necessaries of life.

Thus words without linguistic cues invite holistic processing, whereas words such as *contributory* or *insatiable* require analytic processing that utilizes cues to meaning from many different levels.

As there is not one way of processing a word, it is no wonder that learners have problems. There are many traps to fall into, and they do that, as we have already witnessed in the extracts from thinking-aloud protocols (texts 2 and 5). Let me summarize some of the characteristic features of learner processing evident in both groups, and typical of the L group. Firstly, learners often see a word as a Gestalt, i.e. "a word is a word", meaning that they do not adapt their processing according to word type, but use holistic processing for all types of words, including words with linguistic cues. Secondly, in the cases where learners adopt an analytic approach, they often use bottom-ruled processing leading to unfortunate results.

4. Do Learners Tune in to Particular Word Types?

Teachers and researchers alike often speculate about why some words are more difficult to learn than others. Does the secret perhaps rest with the word itself, meaning that some words are inherently difficult? There is consensus that for instance the length of the word or the degree of abstractness versus concreteness affects the relative difficulty or ease with which a word is learnt (Takala, 1984). Alternatively, the secret may be discovered by looking at learner internal or processing-related factors. Are words difficult because we do not take into account when a learner is cognitively ready to take in a new word? Below I address the latter question by quoting from my findings.

The L group of the study are not very good at discriminating between word types and adapting their processing accordingly; the H group is much better at that. In my study three word types are represented:

Word types	Examples
zero items: words with no linguistic cues (cf. note 3)	*waver; bouts*
ling items: words with linguistic cues; one central element such as a word stem	*cardinal* (adj.); *hazards*
ling+ items: words with linguistic cues; a central element as well as a prefix and/or suffix	*indiscriminately; unfathomable*

It is typical of the *L group* that with ling items they often attempt and sometimes succeed with analytic processing, whereas for ling+ items they fall back on a holistic approach. Are they scared because the words look too long and demanding? Or - related to this - are the demands on their analytic ability too great, because, for *unfathomable*, for instance, no less than three linguistic cues have to be discovered and integrated with the contextual (un-, *fathom*, -able)? I do not know the answer; all I can say is that most learners in the group seem to give up the analytic approach and resort to the familiar Gestalt approach. This means that in the context "The causes of heart diseases, for instance, are far from being mysterious and unfathomable .....", learners use contextual cues to arrive at the hypothesis *unpredictable*. By doing so the L group show that for them words like *waver* and *bouts* (zero items) belong with *unfathomable* and *indiscriminately* (ling+ items), at least they are being processed in the same way. Another way of saying this is that among the three word types, the L group only distinguish between ling items and other items.

In contrast to this, the *H group* show greater flexibility in adapting pro-cessing to different word types. However, they have not reached a stage yet where they always apply the potentially most effective processing. They are very keen on analytic processing both when it is suitable (ling and ling+ items) and when it is not (zero items). In comparison to the L group they spot more linguistic cues in ling+ items such as *indiscriminately*. However, they still treat many ling+ words as if they were ling words, meaning that they recognize only the central linguistic element and not the prefixes and suffixes. In short, the H group discriminate between all three item types, and show flexibility in adapting processing to different item types. The preferred processing style is one that is optimal for ling items, which means that processing of ling items is the potentially most successful.

I propose that the H group learners are tuned in to ling words such as cardinal (adj.); however, they should be presented with ling+ words such as

unfathomable, which create a challenge to them and thereby stretch their pro-cessing ability. In contrast to this, L group learners are not yet ready for ling+ items; for them it is ling items that challenge and control development.

The assumption behind the above is that beginning learners use a large amount of holistic processing. As they learn more of the language they be-come better at analyzing chunks (such as ling words) into constituent parts, which enables them to use analytic processing. Increased L2-proficiency is accompanied by increased ability to discriminate between item types and to adapt processing accordingly. However, if items become too demanding (many cues which are not all transparent) learners relapse into holistic processing. This typically leads to vague approximations, implying that "*insatiable* ambitions" become "*great* ambitions".

As mentioned above, difficulty in vocabulary learning is often ascribed to the word itself. I have proposed a different perspective by focussing on learner cognition. There is, however, some overlap in that for instance the ling+ items, which were found to be too demanding for my L group, are often very long words.

In conclusion, ease of inferencing is one of many factors to take into consideration when designing a lexical syllabus. I predict that being tuned in to a word cognitively is probably overruled by being tuned in to a word effectively. Learners will always find out the meaning of words that are important to them.

5. Word Intake and Word Learning

So far we have only discussed the very first phase in the intake process. This was supported by empirical evidence. What is said below about intake for learning is more speculative in nature. However, as foreign language teachers we cannot afford just to look at learners' inferencing procedures in relation to a problem solving task, but must be concerned with whether the words that are taken in through inferencing will also be remembered. After all, the retention problem is crucial in vocabulary learning.

Looking at factors that facilitate the transformation of intake to learning, I want to emphasize how important it is that learners experience comprehension problems and take responsibility for them, as they are forced to in the inferencing task. This does not happen when the teacher takes pains to adapt her speech towards the language level of the learner (modified input) and teaches vocabulary through presentation followed by practice.

I hypothesize that 1) If words are learnt through inferencing + feedback, they are better retained than words learnt through presentation + formal practice. 2) If a word is learnt in a low-predictable context, i.e. inferencing procedures have involved the use of linguistic cues, it is better retained than items the meaning of which is inferred on the basis of contextual cues. Support for both hypotheses come from psycholinguistic research into L1 comprehension. Jacoby et al. (1979) have evidence that decision difficulty

during initial processing results in a distinctive conceptual representation of the word and a distinctive memory trace which ensures better retention. Cairns et al. (1981) claim that since context facilitates processing, a lexical item received in a highly predictable context will be processed easily with the result that it has a low degree of saliency in memory. In contrast, a lexical item received in a low-predictable context will have a more distinctive representation and a high degree of saliency in memory.

Generalizing from this I propose that inferencing procedures involve more difficult initial decisions than processes activated during word presentation followed by practice. And because difficult initial decisions are associated with high levels of retention words learnt through inferencing will be best retained. As for my second hypothesis I argue - following Cairns et al. (1981) - mat a word inferred by means of linguistic cues will have a more distinctive representation and a higher degree of saliency in memory than words received in a high-predictable context and inferred by means of contextual cues.

I believe that inferencing is facilitated when many cue levels are activated in the processing. Support for this comes from Gass who, dealing with L2 comprehension, phrases it in very general terms:

> *One factor which determines whether or not comprehended input becomes integrated is the level of analysis of the input which the learner achieves. For example, it is possible that an analysis at the level of meaning is not as useful for intake as an analysis made at the level of syntax.*
>
> *(Gass 1988: 205 - 206).*

This view is also shared by Sharwood-Smith who in relation to L2 learning finds it important to separate out comprehension-facilitating processes and processes which aid learning (1986). He emphasizes that input has dual relevance for the learner in that interpretation involves a) processing for meaning and b) processing for competence change. If input is to facilitate learning, it is the latter processes that are crucial, and he argues that a certain amount of analysis of surface structure is necessary to ensure that some aspects of the linguistic input are stored in memory. Applying this to lexical inferencing we would expect that the provision of a rich context for at lexical item invites holistic processing and facilitates comprehension, though not learning. In contrast, an item inviting analytic processing, eliciting learner analysis of linguistic input, will facilitate learning.

If the above proposals are valid, then we know something about the guessability and the learnability of a word. And it looks as if they are inversely proportional: if a word is easily guessed (high guessability), then it is not likely to be well retained (low learnability). This is, however, too simple, since learnability involves some many other factors than guessability, and since cognitive learning factors are the only ones considered here. Over and above such factors are affective ones, for instance whether a particular word is important for understanding a text that the learner is interested in.

6. How Do Students Become Good Word Processors?

In this paper I have suggested that we as teachers should be concerned about raising students' awareness level about communication and learning. It was proposed that students need to know more about for instance perceived similarity and transfer possibilities as well as about top-ruled and bottom-ruled processing as potentially effective or ineffective inferencing procedures. Getting to understand the dynamic and interactive nature of language processing is a difficult task. Moreover, as for vocabulary learning based on written input, it seems likely that in order to be a good word processor, the student must also be a good reader in both the LI and the L2 (Haastrup, in press)[1]. An additional requirement is knowledge of the world, both general and L2 specific. In conclusion, if a student is to be a competent word proces-sor, she must also be a good text processor and world processor.

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WHAT MAKES A WORD ENGLISH? - SWEDISH SPEAKING LEARNERS' FEELING OF "ENGLISHNESS"

Rolf Palmberg
Department of Teacher Education
Abo Akademi, Finland

1. Introduction

A learner's potential vocabulary[1] in a foreign language consists of those words that he has not come across before either in speech or in writing, but that he, owing to his ability to make lexical inferences (Haastrup 1988), can nevertheless understand when he first encounters them. His receptive vocabulary, on the other hand, consists of those words that are already familiar to him and to which he can assign (at least some) correct meaning.

Although the distinction between learner's potential and receptive vo-cabulary is difficult to draw in practice, it is clear that both types of vocabulary include not only what me learner has gained from experience but also elements of intuition. An experiment involving Swedish-speaking learners with no experience of learning English at school, showed for example that they could identify correctly more than half of 40 everyday English words and 14 expressions recorded on tape, and that the solution percentages were especially high for words similar or almost similar in pronunciation to their Swedish translation equivalents (Palmberg 1985). It was also shown that elementary-level, Swedish-speaking learners could successfully recognise and identify the meaning of unfamiliar words in English texts with the help of inferencing procedures (Palmberg 1987b), and especially in texts that fully exploited for-mal similarities between words in the two languages (Palmberg 1988).[2]

As indicated in Færch et al. (1984:194-194), there exists no objective "distance" between two languages. Yet language learners intuitively perceive the distance between say, English and French as smaller than that between English and Chinese (cf. Ringbom 1987:50ff). It is therefore not surprising that a learner's intuitive or experience-based feeling for how closely related his mother tongue is to the foreign language will, consciously or unconsciously, influence his performance whenever he is asked to translate mother-tongue texts for meaning. The tendency to transfer mother-tongue forms into the foreign language or to read foreign-language texts for meaning. The tendency to transfer mother-tongue forms into the foreign language or to assign mean-

ing to foreign-language words based on formal similarities with mother-tongue words especially strong in elementary-level learners because the mother tongue is often their only relevant resource of knowledge (cf. Ellis 1986:19ff.). Furthermore, it is essential that the learners possess a willingness to transfer, irrespective of their perception of language distance (Færch et al. 1984).

The aim of this paper is to present the outline and results of an experiment attempting to find out what kind of words elementary-level Swedish-speaking learners of English as a foreign language either recognise as or believe to be English words, and to what extent their performance is influenced by their mother-tongue.

2. Subjects

26 eighth-form pupils attending a Swedish-medium comprehensive school in a bilingual Finnish-Swedish area of Finland, participated in the experiment. At the time of the experiment, they were in their early teens (average age 14) and had had almost four years of English and six years of Finnish studies at school. In addition, they were all beginning learners of German.

3. Test procedures and test words

A list of 60 words was presented to the pupils, and they were asked to indicate (by ticking) which words they either knew or believed were English. Following the technique suggested in Meara and Buxton for testing vocabulary

knowledge (1987), the list consisted of both real and imaginary English words.

22 of the 40 English words used in the experiment (*big, bike, blanket, choose, come, dangerous, fat, film, forty, garage, glass, hall, mountain, present, public, space, starring, talking, tall, tax, useful* and *zero*) were a sample of words from the vocabulary list of 1100 English words which, according to the recommendations made by the Finnish National Board of General Education, constitute the minimal basic vocabulary to be actively known by pupils leaving comprehensive school at the age of 16 (*Engelska* 1978; from now on these words will be referred to as FNBGE-words). The remaining 18 English words (*anorak, chauffeur, journalist, personal, relax, system, bullet, channel, computer, crime, fabric, hi-fi, pensioner, platoon, profit, pyjamas, sauna* and *software*; from now on referred to as non-FNGBE-words) were selected among a variety of topics, including words related to pupil interest areas such as television programmes, computers and music.[3] The first six words appear in the class textbook, *On the Move* (Björkman et al. 1981).

The 20 imaginary words comprised of both non-existent words (*branking, corandic, glupous, lgung, ngobl, rpet, starp* and *tarances*), German

words (kommt, los, schon, wagen and zu) and Swedish words (förty, klimpa, käring, niding, nypa, superi and skrupel).

The pupils were also asked to indicate whether they were certain that the words they had ticked were English, and, if possible, to provide each presumed English word with a Swedish translation or explanation.

4. Results and discussion

In Table One below, the test words have been listed according to how many times they had been ticked by the pupils. The figures within parentheses indicate the order in which the words were presented in the list of test words.[4]

TABLE ONE

Test Words	No. of pupils presuming words to be English	No. of pupils indivating uncertainity	No. of pupils providing correct translation	No. of pupils providing incorrect translation
big (28)	26	1	24	-
computer (47)	26	1	23	-
bike (6)	26	-	23	-
channel (60)	26	1	22	-
choose (2)	26	1	22	-
mountain (22)	26	-	22	-
talking (18)	26	2	21	-
relax (27)	26	2	21	-
useful (16)	26	3	16	-
come (32)	25	1	23	-
space (10)	25	1	17	1
software (15)	25	7	3	2
public (23)	25	6	-	13
dangerous (39)	24	1	21	-
zero (55)	24	3	19	1
starring (26)	24	2	7	3
fat (57)	23	3	19	1
hall (14)	22	2	20	-
garage (56)	22	3	19	-
film (8)	21	2	20	-
tax (19)	21	-	10	7
fabric (5)	20	9	-	13
tall (36)	19	1	18	-
system (9)	19	2	17	-
present (44)	19	2	16	1

Word				
crime (51)	19	4	12	-
platoon (29)	19	6	6	2
glass (13)	18	1	17	-
personal (30)	18	3	5	10
bullet (3)	15	5	9	-
forty (41)	14	3	11	1
blanket (50)	14	2	2	9
journalist (4)	13	4	10	-
hi-fi (49)	13	4	4	-
anorak (35)	10	1	8	-
corandic (12)	8	4	-	-
pyjamas (21)	7	3	6	-
los (45)	7	5	-	-
tarances (20)	7	3	-	-
chauffeur (59)	6	1	5	-
sauna (25)	6	2	5	1
profit	6	3	1	-
branking (46)	6	5	-	-
glupous (58)	5	4	-	1
riding (48)	4	4	-	1
schon (24)	3	2	-	-
wagen (53)	3	1	-	2
pensioner (43)	2	1	1	-
starp (37)	2	2	-	-
superi (17)	2	2	-	-
skrupel (52)	2	1	-	1
kommt (11)	1	1	-	-
lgung (31)	1	-	-	-
rpet (40)	1		-	1
zu (38)	1	-	-	1
förty (42)	-	-	-	-
klimpa (7)	-	-	-	-
käring (33)	-	-	-	-
ngobl (54)	-	-	-	-
nypa (1)	-	-	-	-

In general, the pupils could make fairly accurate judgements concerning the 22 FNBGE-words included in the test. They are all among the 32 top words in the table, ranging from the six words that were ticked by all pupils (*big, bike, choose, mountain, talking,* and *useful*) to two words ticked by only 14 pupils (*blanket* and *forty*). On average, the FNBGE-words were ticked by 22.5 pupils (86%).

The pupils provided these words with an average of 18.4 translations, 16.7 of which were correct. The three best known words were big (correct translations were suggested by 24 pupils), bike and come (both words were

translated correctly by 23 pupils), whereas the two least known words were *blanket* (eleven translations were given, nine of which were incorrect) and *public* (the word produced 13 translations, all of which were incorrect).

The 18 non-FNBGE-words are evenly distributed among the top 50 words. On average, they were ticked by 12.5 pupils (48%), ranging from *computer, channel* and *relax* (ticked by all pupils) to *chauffeur, sauna, profit* and *pensioner* (the first three words were ticked by six pupils; the fourth word by two pupils). Taken together, the words produced an average of 10.4 translations, 8.8 of which were correct. The three best known words were *computer, channel* and *relax* (correct translations were suggested by 23,22 and 21 pupils, respectively), whereas the two least known words were *personal* (15 translations were given, five of which were incorrect) and *fabric* (the word produced 13 translations, all of which were incorrect).

A relatively large number of Swedish words have counterparts in English that are similar or identical in form. For example, of the 1100 FNBGE-words referred to above, about 400 are orthographically either identical in the two languages (e.g. *hand, son, garage*) or similar enough to be correctly identified by Swedish-speaking people without too much difficulty (e.g. *music, school, green*; in Swedish 'musik', 'skola' and 'grön') (cf. Wikberg 1979). The number of words that are pronounced the same in the two languages is somewhat smaller; less than 100 words (cf. Palmberg 1985).

The 40 English test words comprise 18 such cognate words. Ten are genuine cognates, i.e. they are similar or identical in form in the two languages and share (at least partially) the same meaning. Of these, the FNBGE-words *hall, garage, film* and *present* were ticked by an average of 21.0 pupils; the remaining six words, i.e. *system, journalist, anorak, pyjamas, chauffeur* and *pensioner* (all of which appear in the class textbook), were ticked nu an average of 10.2 pupils.

Eight of the cognate words (*public, fat, tax, fabric, tall, glass, personal* and *blanket*) are deceptive cognates or "false friends" insofar that they have identical or similar spellings but different meanings (see e.g. Ringbom 1987:116). They were ticked by an average of 19.8 pupils, the large majority of which were certain that their judgements were correct. The word *fabric* (which appears neither in the FNBGE-list nor in the class textbook) elicited nine uncertainty responses, the average uncertainty responses given for the seven words in this category being 2.3.

These eight words produced a total of 53 incorrect translations (the number of incorrect translations given for the remaining 52 test words was 20). In fact only five of the words (*public, tax, fabric, personal* and *blanket*) were problematic for the learners insofar as they produced 52 or the 53 incorrect translations offered (the relatively frequent *fat* and *tall* produced no incorrect translations at all whereas *glass* produced one). The incorrect translations included 'public' (Eng. "audience") and 'publicera' ("to publish") for *public* (suggested by nine and four pupils respectively); 'taxa' ("list of rates") and 'tax' ("badger-dog") for *tax* (suggested by four and two pupils respectively); 'fabrik' ("factory") for *fabric* (suggested by 13 pupils); 'personal'

("staff) for personal (suggested by ten pupils); and 'blankett' ("form") for *blanket* (suggested by nine pupils).

The pupils could also make fairly accurate judgements concerning me non-FNBGE words relating to television programmes, computers and music. The seven words, i.e. *computer, channel, software, crime, platoon, bullet* and *hi-fi*, are all among the 34 top words in the table, ranging from *computer* and *channel* that were ticked by all pupils, to hi-fi that was ticked by 13 pupils. On an average, these words were ticked by 20.4 pupils (76%). Furthermore, the pupils provided the words with an average of 10.6 translations, 10.0 of which were correct. The two best known words were *computer* (correct translations were suggested by 23 pupils) and *channel* (the word was translated correctly by 22 pupils), whereas the two least known words were *hi-fi* (the word produced four correct translations) and *software* (five translations were suggested, three of which were correct).

The pupils were relatively unwilling to accept the foreign loanwords included in the test as English words. The word *anorak* (originally as Eskimo word), for example, was ticked only by ten pupils (eight of which provided it with a correct translation), although it has also been borrowed into Swedish in its original form. The same applies to *pyjamas* (borrowed from an Indian language) and the French *chauffeur*, which were ticked by seven and five pupils, respectively (six and five of them provided the words with correct translations). The Finnish loanword *sauna* (for which there is a Swedish word, 'bastu'), was ticked by only six pupils (five of which provided it with correct translations and two of which indicated that they were not certain whether it was an English word).

The eight non-existent words were ticked by an average of 1.2 pupils, more than half of which indicated that they were not certain whether the words were in fact English. The three most English-like words were, according to the pupils, *corandic, tarances* and *branking* (ticked by eight, seven and six pupils, respectively), whereas *lgung, rpet* and *ngobl* were rejected by almost all pupils (the first two words were ticked by one pupil each; the last word was not ticked at all).

The five German words were ticked by an average of 0.6 pupils, ranging from *los* (ticked by seven pupils) to *kommt* and *zu* (ticked by one pupil each). More than half of the pupils who had ticked the words indicated uncertainty as to whether me words were English.

The seven Swedish words, finally, were ticked by an average of 0.3 pupils, all of which indicated uncertainty as to their judgements. In fact only three of the words were ticked at all, i.e. *niding* (ticked by four pupils), *superi* and *skrupel* (ticked by two pupils each). The remaining four words (*förty, klimpa, käring* and *nypa*) were rejected by all pupils.

To sum up, the pupils' judgements of which of the test words were English words, must be interpreted as very accurate. It becomes clear that the pupils at this proficiency level possess both receptive and potential vocabularies in English, the sizes of which depend largely on the type of input that has been available to them and their individual interests. The results also reflect

the effects of the pupils' mother tongue on their judgements of Englishness, the fact that they have already studied English at school for almost four years, and the effects of the considerable impact of English there is on Finnish school children outside school, e.g. through television. In fact, more than half of the foreign films and programmes shown on Finnish television today are British or American (all of which are presented with original sound and with subtexts in Finnish or Swedish), and, furthermore, there is a large selection of English-medium programmes available on different satellite television channels.

As for non-English words, the pupils did, in general (and with some uncertainty), accept non-existent words that share the physical characteristics of real English words. Likewise, they rejected words that include letter combinations (and, for some of the Swedish words, letters) that do not exist in English. In fact the pupils' judgements were even better that what the results show, as some of the accepted, non-English words could be explained by mis-readings on the part of individual pupils. Examples are *niding* (evidenced by the translation of the word as 'behöva', i.e. "needing") and *rpet* (translated as 'sägaefter' i.e. "repeat"),

5. Conclusion

Assuming that this type of test can be successfully used for assessing learners' receptive and potential vocabulary knowledge, then the present results clearly demonstrate the pupils' ability to tell fairly accurately which of the test words were English and which were not. Throughout the test, the pupils typically played it safe and ticked known words only, although the translations offered show that the false friends type of words caused special difficulties also in cases involving frequent words. Interpreting me results of a small-scale experiment such as the present one, it must, however, be remembered that they are largely dependent on a number of different factors. In this case, the two most important ones are probably the choice of words (cf. Meara and Buxton 1987) and the fact that recognising and understanding isolated words is, in principle, a more difficult task than inferring the meaning of words contained in reading passages (cf. Crow 1986:246).

Notes

1. For the concept of potential vocabulary, see Berman et al. (1968); cited in Takala (1984:68).

2. Palmberg's experiments were carried out at the Department of Teacher Education at Âbo Akademi as part of a current research project on foreign-language vocabulary learning and teaching. The main aims of the project are to make insights into foreign language learning as it takes place in classroom

environment and to create optimal learning conditions for beginning Swedish-speaking learners of English as a foreign language.

3. The topic of television programmes was selected because 76 per cent of Swedish-speaking fourth-formers required to state in a questionnaire where they believed that they had learned the English words that they knew before starting to learn English at school, had chosen the option "by watching television" (Palmberg 1985). The other two topics were selected because any variability in the vocabulary-production patterns of learners required to produce at regular intervals English words starting with specific letters, could be largely explained by their individual interests in computers and rock music (Palmberg 1987a).

4. The data were collected by Nina Sundman while working in her M.A. thesis at the Department of English at Åbo Akademi. For a detailed presentation and analysis of the results, see Sundman (1988).

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VOCABULARY AND GRAMMAR: A MULTITRAIT-MULTIMETHOD INVESTIGATION

Pierre J. L. Arnaud
Université Lumière-Lyon 2

1. Introduction

The main function of language tests is practical: they are used for selection, placement, diagnostic etc. purposes. The main impetus in language testing research stems from these uses. However, language tests also serve as research instruments when proficiency is included among the variables in an experiment and tests constitute the main source of data in research on the nature of L2 competence.

Language testing doctrines have gone through a succession of phases. The first one combined psychometric methods borrowed from differential psychology and me structural view of language then prevalent in applied linguistics. This approach was elaborated in the 1950s and became popular after the publication of Lado's founding treatise, *Language Testing*, in 1961. Testing was organized around the idea that language can be analysed into sets of distinct elements, sounds, grammatical structures and lexemes, and that language activities involve four *skills* resting on mastery of these components. Vocabulary tests were part of most batteries, and the major handbooks (Valette 1067, Hams 1969, Heaton 1975) contained extensive inventories of vocabulary item types.

More and more doubts were expressed in the early seventies about the validity of discrete-item tests of separate components. Among their most vocal critics was John Oller, whose research on the factor structures of test batteries pointed to the unitary nature of L2 competence. Factor analysis was no new research tool in applied linguistics, and Carroll (1983) traced the beginnings of research on the structure of L2 competence back to at least 1944, when a researcher found a unique proficiency factor in German as a foreign language. It was not until the mid-seventies, however, that a large body of factory-analytic research on language-test batteries was produced. Prominent among these empirical investigations were those of Oller and his associates (see Oller & Perkins 1980), who generally found that one general factor was sufficient to account for the variance in scores on different tests.

Doubts were expressed in turn about this research methodology, however (Hughes 1981, Powers 1982, Raatz 1982, Carroll 1983, Woods 1983, Cziko 1984), and in particular one article by Oller and Hinofotis (1980) came under heavy critical fire. Sang and Vollmer (see Vollmer 1983) and Lee Yick-pang (1984) re-did the calculations and found the one-factor solution unsatisfactory. The data of Oller and Hinofotis (1980) will be examined further on in this paper. A collection of relevant articles edited by Oller in 1983 signalled that a consensus had been reached on the inadequacy of the unitary competence theory. Of particular interest to the vocabulary specialist in this respect is a study by Sang and Vollmer (Vollmer 1983) who applied different methods of factor analysis to the data of previously published factor-analytic investigations: among the 28 sets of results (original or re-calculated), only six appeared to include a factor that could be interpreted as a vocabulary factor.

Other significant developments in the language testing field were a shift towards *communicative testing*, and increasing interest in validity problems. Communicative is a fuzzy term which subsumes different characteristics, among which are an insistence on realism and authentic communication in tests, a rehabilitation of subjective assessment, and an emphasis on holistic measures. In this perspective, tests of separate components such as vocabulary tend to be considered useful or irrelevant, and vocabulary testing has consequently been the object of virtually no interest from the language testing community. It is only recently that scholars with an interest in vocabulary have started investigations of new testing methods, including the checklist method (Read & Nation 1986, Meara & Buxton 1987).

The claim by proponents of communicative tests that these tests were more valid than separate component tests no doubt encouraged interest in the validity aspects of L2 tests, but this interest also stemmed from new approaches borrowed from psychometry. The construct validity of some existing foreign language tests was re-examined in the light of the concept of convergent-divergent validity. Clifford (1981) studied the correlation matrices of several publications in which scores from different batteries had been correlated. Although measures of the same skills had been found to have convergent validity, it now appeared that measures of different skills within the same batteries actually corresponded to higher correlations and thus that the measures lacked divergent validity. Of more direct interest here is Clifford's re-examination of earlier research by himself on two measures of oral proficiency, the speaking portion of the MLA Co-operative Foreign Language Test and the Teacher Oral Proficiency (TOP) interview. As appears in Table 1, TOP vocabulary scores correlated better with TOP grammar scores than with MLA vocabulary scores. Similar problems with vocabulary and grammar measures can be found in other publications. As we have seen, the Oller and Hinofotis (1980) factor-analytic study was criticized for its methodology, but neither the authors nor their critics had seemingly detected a major flaw in the study. Indeed, if one examines the correlations between vocabulary and grammar measures obtained through the TOEFL test and FSI interviews (Table 2), it appears that the vocabulary/grammar correlations were higher

than the vocabulary/vocabulary correlation. Such data should probably never have been submitted to factory analysis in the first place. Clifford's and Oller and Hinofotis's studies have in common the fact that they included data from oral interviews, and serious reservations have been expressed as to the suitability of such data for psychometric research (Raatz 1981). However another study (Hosley & Meredith 1979), which included only objective measures from the TOEFL and CELT batteries, did not escape the same drawback (Table 3). This shows that the validity of vocabulary and grammar measures should never be taken for granted and that one should always be prepared to prove that they have not only convergent but also divergent validity.

Table 1   Correlations quoted by Clifford (1981)

	TOP vocabulary
MLA vocabulary	0.816
TOP grammar	0.876

Table 2   Correlations from Oller and Hinofotis (1980)

	TOEFL vorabulary	FSI grammar
FSI vocabulary	0.29 (n.s.)	0.80
TOEFL structures	0.40	

Table 3   Correlations from Hosley and Meredith (1979)

	TOEFL vocabulary
CELT vocabulary	0.41
TOEFL structures	0.45

The multitrait-multimethod matric (Campbell & Fiske 1967) makes this validation possible by showing the effect of test methods. Experiments involve measures of several hypothesized traits through several different methods, and same-trait, different-methods correlations should be higher than different-trait, same-method correlations. A typical multitrait-multimethod investigation is that by Bachman and Palmer (1981) which involved two traits (oral production and written comprehension) and three methods (FSI interviews and reading measures, translation, and self-assessment). Discriminant

validity appeared in 13 of the 20 possible comparisons for oral production and 12 for written comprehension.

An attempt by Corrigan and Upshur (1982) is of more direct interest here since the two traits were vocabulary and grammar. As the methods were complex, the authors' own descriptions are quoted:

1) *Aurally cued tests*. For each item in these tests, Ss heard a taped English statement containing the target vocabulary word or grammatical structure. Ss were required to choose which of three pictures best represented the sentence that they heard.

2) *Orthographic cues with orthographic multiple-choice responses*. Each test contained a list of incorrect sentences. Three words or phrases were underlined in each sentence. Ss were required to choose which of the underlined parts of the sentence caused the entire sentence to be incorrect.

3) *Pictorial and orthographic cue with orthographic supply response*. Each item in these tests contained a picture which represented the target sentence. Ss were given part of the target sentence and told to write a completion for the sentence so that me completed sentence would represent the picture.

Unfortunately, reliability was rather low (0.42, 0.49 and 0.48 for the vocabulary tests). The correlations failed to prove that the measures had convergent-divergent validity.

The present study is a new attempt at validating vocabulary and grammar tests using the multitrait-multimethod matrix.

In the first place, it seems necessary to explain why the separate existence of vocabulary and grammar as components of L2 proficiency is hypothesized. But first, a brief discussion of the terms *competence* and *proficiency* is useful, since, together with *performance*, they have often been used indiscriminately in the language testing literature. Competence, which can be assessed through performance, subsumes the language components as integrated by the individual (e.g. the mental lexicon), but also higher-order processes and skills, metalinguistic awareness etc. Whether one can speak in that sense of L2 competence as distinct from Ll competence is unclear. Competence is certainly hierarchical in nature, but that it will have to remain a vague construct for a long time appears in the multiplicity of models that have been proposed: Canale (1983) reports that previously published models included from 1 to 64 components. It should be stressed in addition that these models are by and large speculative. *Proficiency* is more directly related to foreign-language acquisition. It is understood here as a differential concept which expresses the degree to which an L2 speaker's performance approximates to that of a native speaker in qualitative as well as quantitative terms. Why vocabulary and grammar should be considered as necessary and distinct components of language *competence* is relatively easy to justify and one can resort to centuries of linguistic tradition or to neighbouring sciences such as neurolin-guistics (different lesion sites result in different types of language deficits, some being more grammatical in nature and others more vocabulary-centred -see Cooper & Zurif 1983). Why it is that vocabulary and grammar can be hypothesized to be different dimensions of *L2 proficiency* is more difficult   to

justify. It is reasonable to assume that in a population of L2 speakers, individual characteristics such as study habits, motivation, L1-L2 closeness etc. will lead some learners to be more proficient in vocabulary than in grammar and vice versa. Extensive reading, for instance, will produce a large receptive vocabulary, but not necessarily good grammar in production tasks. This is how Bachman and Palmer (1982) justified the separation of vocabulary and grammar in their model of communicative competence:

> *Our inclusion of vocabulary as a subtrait of pragmatic, rather than grammatical, competence is based on our frequent observation that certain non-native speakers with little or no grammatical competence are nevertheless able to maintain some meaningful communication on the basis of their knowledge of vocabulary alone.*

2. Method

Proficiency on the two traits, vocabulary and grammar, was assessed through three test methods. Given the unsatisfactory available results (see above) resting on large-scale institutional batteries, it was decided to use tests specifically designed for the experimental population, all francophone students in their first year of specialized English studies at university. The first method corresponded to the multiple-choice format. Vocabulary items consisted of a pictorial cue with five options. This type of item is practically restricted to "concrete nouns" for intelligibility reasons, but it was retained for its purity, clarity and speed of completion.

Multiple-choice grammar items were also simple in nature; they consisted of an English sentence in which four options in brackets were inserted in the place of one segment; subjects were required to indicate which of the options was the only possible one in the given context. Both multiple-choice tests were non-productive in nature.

French to English (L1 -> L2) translation was chosen as the second method. The use of contexts in vocabulary tests has not received sufficient attention so far. One need not be convinced by unsupported statements such as Wallace's (1982:112) "*It goes without saying that a student should never be tested by having to translate words out of context*", and, even supposing that vocabulary should always be taught in context, there is no imperious reason why, in a setting similar to that of this experiment, testing should be an exact reflection of teaching methods. Furthermore, if an L2 lexeme is part of a learner's production vocabulary, then this learner can be expected to produce it when cued with its Ll translation equivalent. Context-less items (i.e. French words in isolation) were therefore selected for their simplicity. Contrary to picture stimuli, this format made it possible to resort to "abstract" words (50%) and allowed me use of verbs and adjectives as well as nouns. As with all productive tests, it was necessary to take into account divergent responses to those items which were not entirely unambiguous.

The L1 ->L2 grammar test consisted of a series of French utterances whose translation involved difficulties, contrastive or otherwise, that French learners are known to have with English grammar. Contrary to what had been the case for the entirely controlled multiple-choice grammar test, several errors - some of them unforeseen - could appear in the translation of individual items, and only translations that were entirely correct grammatically were counted right; lexical errors did not count. The four tests with Methods 1 and 2 included 50 items.

The third test method was error recognition. Vocabulary and grammar were included in the same test. The students were presented with a set of 80 English sentences which included 30 correct sentences, 25 with vocabulary errors and 25 with grammatical errors. The students were warned that some of the sentences were correct while others included deliberate mistakes; they were required to indicate whether each sentence was correct or wrong; in addition, to prevent chance responses, they were required to underline which word or group of words rendered the sentence incorrect. Pretesting showed that the most reliable scoring technique consisted in simply counting incorrect sentences in which the error had been pinpointed by the student. Maximum possible scores were therefore 25 for vocabulary and grammar.

The subjects were first-year students of English at the Université Lumière-Lyon 2, who had studied English for seven years in secondary schools. The two multiple-choice tests were administered as part of an entrance battery which is used locally for non-selective purposes. The other tests were administered together a few weeks later. A total of 115 students took the whole battery. Test statistics and reliability indices are reproduced in Table 4.

Table 4   Test statistics – N = 115

	mean	s.d.	$r_t t$
vocabulary, multiple-choice[a]	26.47	7.57	0.80*
grammar, multiple-choice[a]	31.37	5.31	0.73*
vocabulary, L1->L2 translation[a]	31.03	8.62	0.89*
grammar, L1->L2 translation[a]	27.03	7.42	0.86*
vocabulary, error recognition[b]	7.74	3.70	0.655
grammar, error recognition[b]	12.85	3.50	0.58

a: 50 items   *: K.R. (Horst)

b: 25 items   : split-half

Bravais-Pearson inter-correlations were computed (Table 5). Some of the different-trait correlations are higher than some of the same-trait correlations, which suffices to invalidate the battery. Although the highest correlation was that between vocabulary-error recognition and grammar-error

recognition, no clear method factor appeared after principal components analysis (Table 6). A single, general factor with sufficient eigenvalue appeared. With 90% of variance explained as a criterion, a second, uninterpretable factor appeared.

Table 5   Correlations

	1	2	3	4	5	6
1 – vocabulary, multiple-choice						
2 – grammar, multiple-choice	.29					
3 – vocabulary, L1->L2 translation	.265	.24				
4 – grammar, L1->L2 translation	.13	.46	.43			
5 – vocabulary, error recognition	.32	.29	.45	.42		
6 – grammar, error recognition	.25	.38	.32	.445	.57	

Table 6   Principal components analysis

	H^2	F1	F2
1 – vocabulary, multiple-choice	0.188	0.418	-0.115
2 – grammar, multiple-choice	0.467	0.57	0.377
3 – vocabulary, L1->L2 translation	0.371	0.587	-0.166
4 – grammar, L1->L2 translation	0.467	0.65	0.212
5 – vocabulary, error recognition	0.585	0.718	-0.263
6 – grammar, error recognition	0.499	0.706	-0.026

3. Discussion

What multitrait-multimethod experiments are about is basically the collective validation of specific tests. The only legitimate conclusion that can be drawn from the present research, therefore, is that the six tests investigated lack convergent-divergent validity. No conclusion as to the separate existence of vocabulary and grammar as components of L2 proficiency can be drawn.

As the saying goes, "Negative results are but a challenge to your methodology," and an assessment of the multitrait-multimethod paradigm is justified. But first, although the tests used in this experiment constituted an improvement over those of Corrigan and Upshur (1982) in terms of reliability, their shortcomings should be examined.   The   error   recognition   test   is   not

very productive: only 2 x 25 items were included in as many as 80 sentences, and, as test reliability depends among other variables on the number of items, very high reliability indices were unlikely to appear. Furthermore, the criticism formulated by the proponents of communicative testing that separate-component tests are always metalinguistic in nature is particularly telling in this case. It must be stressed here that if one wishes to apply the multitrait-multimethod paradigm to *objective* testing methods, it is extremely difficult to find three clearly different methods that can apply to such traits as vocabulary and grammar; for instance, the checklist method for vocabulary (see above) could not be applied to grammar without major modifications. As we have seen, Bachman and Palmer (1981) resorted to subjective methods, including a rather dubious one, self-assessment.

The reliability of me two multiple-choice tests was also less than satisfactory. Most of the items had been pretested, however, and the only explanation that can be offered rests on the instability of item characteristics on very homogeneous student populations. It was only at a late date that the influence of subject sample characteristics on variance and correlations became widely recognized in the literature on research on the structure of L2 proficiency (Alderson 1981, Raatz & Klein-Braley 1981, Stansfield 1981 note 3). Studies by Powers (1982) and Hughes and Woods (1982) showed that factor structures of data from test batteries change when one examines particular sub-groups of the tested population. The subjects in the present experiment constituted a very homogeneous group, since all were native speakers of French, had been taught English for seven years in institutional settings (four years of *collège* and three years of *lycée*), by mostly francophone teachers, with comparable methodologies and a unified syllabus in the first four years. The possible differences in acquisition modes mentioned in the introduction, such as extensive individual reading resulting in a large receptive vocabulary, were largely absent here, and this may have prevented positive results from appearing.

The multitrait-multimethod matrix cannot be said to have produced particularly impressive results in the language acquisition field so far, and it may well be that itslimitations, including the need for suitable subject samples, will prove insuperable. However, the experiments reviewed in the Introduction as well as the results of Corrigan and Upshur's (1982) or the present experiment leave a vital research question unanswered: do separate-component tests of grammar and vocabulary have convergent-divergent validity? More work is obviously needed in that direction.

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MATRIX MODELS OF VOCABULARY ACQUISITION

Paul Meara
Birkbeck College, London University

The traditional way of comparing the effectiveness of different ways of teaching vocabulary in an L2 is essentially very straightforward. In its simplest form, the researcher takes two groups of learners, carefully controlled for obvious variables likely to affect the outcome. He then exposes one group to method A, the other group to method B, and compares the number of words learned by group A with the number of words learned by the B group. The appropriate statistical tests then allow him to decide whether the differences he finds are significant. In practice, of course, things are never this simple. There is, for instance, the much vexed question of how we define "knowing a word". There is also the problem that it may be difficult, or impossible, to find a testing procedure which is truly neutral between the efficiency of the keyword method and learning words from context, for instance, is hard to imagine.

Nevertheless, despite these major difficulties, there are circumstances where people do want to compare the efficacy of different methods, and a number of experimental research papers which claim to do just this have appeared in recent years. Occasionally, these papers do rather more than what I have outlined above, and report not just the initial differences between the groups, but also the way these differences persist over time, or diminish over time as the case may be. Such changes are obviously important: a huge initial difference that disappears after 24 hours in not worth making a big song and dance about; on the other hand, a very small initial difference which increases as time goes by, needs to be taken more seriously.

Surprisingly, perhaps, not a great deal has been made of the longer term benefits which can be attributed to various learning methods. The only studies I know of which address this question are laboratory studies, where "long term reduction" is studied over 10 days or so, rather than the several months or years that we are really interested in as teachers or language learners.

In this paper, I want to propose a rather more sophisticated approach to this question. Before we can do this, however, we need to look at a simple mathematical model of the process we are trying to describe. Let us imagine that we have a situation where we teach an individual learner (call him Pedro) 100 L2 words, and we are interested to know how many words he will retain after 6 months. No learner is perfect, so let us imagine that at the end of the

basic learning session, Pedro has fully acquired 90 of these words, but has failed to learn the other 10. We know that over the next few days, he is going to forget some of the words he knows now; he might also spontaneously remember some of the words that he has already forgotten. Let us pretend for the sake of argument, that we actually know how likely it is that Pedro will forget one of the 90 words he knows, or spontaneously regenerate a forgotten word. Let us say, that over seven days, there is a 1 in 10 chance that he will forget a word, and a 1 in 10 chance that he will spontaneously recover a forgotten word. We can map out this set of probabilities as shown in Table 1.

Table 1

Probability of transition between 2 states.

K = known words   F = forgotten words.

k1 = words known at T1   f1 = words forgotten at T1

k2 = words known at T2   t2 = words forgotten at T2.

initial	K	F	transition		k2	f2
state:	90 :	10	matrix:	k1	.9	.1
				f1	.1	.9

Table 1 shows that Pedro starts off knowing 90% of the words we have taught him. Between T1 and T2 (let's say over a week) there is a 90% chance of him retaining each of these words, and a 10 % chance of him forgetting each word. There is also a 10% chance that a forgotten word will regenerate, and a 90% chance that a forgotten word will stay forgotten.

Given this data, we can calculate what state Pedro's vocabulary will be in at the end of the first week. He should know:

$(90 * .9) + (10 * .1) = 82$ words

and he should have forgotten the rest:

$(90 * .1) + (10 * .9) = 18$ words.

We can use this same method to predict what should be the state of Pedro's vocabulary at the end of week 2, by taking the new start state (82 known words, 18 forgotten words) and multiplying these figures in the matrix. And, in fact, we can predict the state of Pedro's vocabulary knowledge at the end of each weekly cycle by iterating this calculation, as in the left-hand column of Table 2.

Table 2

Effect of iterating a transitional probability matrix.

K = known words   F = forgotten words.

k1 = words known at T1   f1 = words forgotten at T1

k2 = words known at T2   t2 = words forgotten at T2.

---

transition		k2	f2
matrix:	k1	.9	.1
	f1	.1	.9

		K F	K F	K F
initial state		90 : 10	80 : 20	30 : 70
	wk 2:	82 : 18	74 : 26	34 : 66
	wk 3:	75 : 24	69 : 30	37 : 62
	wk 4:	70 : 29	65 : 34	39 : 60
	wk 5:	66 : 33	62 : 37	41 : 58
	wk 6:	63 : 36	59 : 40	43 : 56
	wk 7:	60 : 39	57 : 42	44 : 45
	wk 8:	58 : 41	56 : 43	45 : 54
	wk 9:	56 : 43	55 : 44	46 : 53
	wk 10:	55 : 44	54 : 45	47 : 52
	wk 11:	54 : 45	53 : 46	47 : 52
	wk 12:	53 : 46	52 : 47	48 : 51
	wk 13:	52 : 47	52 : 47	48 : 51
	wk 14:	52 : 47	51 : 48	48 : 51
	wk 15:	51 : 48	51 : 48	49 : 50
	wk 16:	50 : 48	51 : 48	49 : 50
	wk 17:	50 : 49	50 : 49	49 : 50
	wk 18:	50 : 49	50 : 49	49 : 50
	wk 19:	50 : 49	50 : 49	49 : 50
	wk 20:	50 : 49	50 : 49	50 : 50

This table reveals a rather surprising phenomenon. It looks, at first, as if Pedro's retained vocabulary is going to disappear completely in time, but this isn't what happens. Instead, the system reaches an equilibrium point after about fifteen iterations, where the number of items forgotten is balanced by the number of items that spontaneously regenerate. In this example, Pedro retains about half the words we originally taught him.

What factors contribute to this equilibrium level? The middle column of Table 2 shows what happens if we start off from a different initial state, with Pedro retaining only 80% of the original words. Surprisingly, the system settles down into equilibrium at exactly the same level after sixteen iterations. The righthand column of Table 2 shows an even more dramatic example, where Pedro remembers only 30% of the original words. Amazingly, in this case, spontaneous regeneration causes the number of words he knows to INCREASE, and again the system eventually settles down into equilibrium after 20 or so iterations. Once again, the equilibrium point is the same as we found for our first example. (The small difference in the Table is due to rounding.)

Table 3

How equilibrium point is affected by the underlying transition matrix.

K = known words   F = forgotten words.

k1 = words known at T1   f1 = words forgotten at T1

k2 = words known at T2   t2 = words forgotten at T2.

transition		k2	f2		k2	f2		k2	f2
matrix:	k1	.8	.2	k1	9	.1	k1	.6	.4
	f1	**.1**	**.9**	**f1**	**.3**	**.7**	**f1**	**.05**	**.95**

	K : F	K : F	K : F
initial state	90 : 10	90 : 10	90 : 10
wk 2:	73 : 27	84 : 16	54 : 45
wk 3:	61 : 38	80 : 19	34 : 65
wk 4:	52 : 47	78 : 21	24 : 75
wk 5:	46 : 53	76 : 23	18 : 81
wk 6:	42 : 57	76 : 23	15 : 84
wk 7:	40 : 59	75 : 24	13 : 86
wk 8:	38 : 61	75 : 24	12 : 87
wk 9:	36 : 63	75 : 24	11 : 88
wk 10:	35 : 64	75 : 24	11 : 88
wk 11:	34 : 65	75 : 24	11 : 88
wk 12:	34 : 65	75 : 24	11 : 88
wk 13:	34 : 65	75 : 24	11 : 88
wk 14:	33 : 66	75 : 24	11 : 88
wk 15:	33 : 66	75 : 24	11 : 88
wk 16:	33 : 66	75 : 24	11 : 88
wk 17:	33 : 66	75 : 24	11 : 88
wk 18:	33 : 66	75 : 24	11 : 88
wk 19:	33 : 66	75 : 24	11 : 88
wk 20:	33 : 66	75 : 24	11 : 88

Table 3 shows what happens if we vary, not the initial starting state, but the matrix of transitions. Each of the examples takes 90% known words as its starting point. Here again, we see that the systems eventually settle down into equilibrium after fifteen or so iterations, but this time, the equilibrium points are different.

The matrix at the head of the left most column in Table 3 resembles the matrix we examined in Table 2, in that the probability of spontaneous regeneration remains at 1 chance in 10. The likelihood of a known word being retained is reduced however. Not surprisingly, this produces a lower equilibrium point than our original matrix. In the central matrix in Table 3, we have

increased the probability of spontaneous regeneration relative to our original matrix, and we find that a gratifyingly high equilibrium point emerges. The rightmost matrix in Table 3 is more likely to be something like what happens in real life. This matrix allows for a modest retention rate from one week to the next, coupled with a very small chance of spontaneous regeneration. The long-term equilibrium point of this system is only 11%.

Now, what we have shown here is that FINITE STATE TRANSITION MATRICES of this kind have an interesting mathematical property: *their equilibrium points are completely independent if the starting state of the system*. It is the transition matrix, not the initial starting point that determines the equilibrium level. The starting point affects how long it takes for the system to reach its equilibrium level, but in the long term, it is not relevant to the final state of the system.

We began this paper by asking: how can we assess the effectiveness of two different vocabulary acquisition programs? The mathematical arguments we have just reviewed suggest that the traditional method - a one-off post-test administered immediately after learning - completely misses the real point at issue. Even when an immediate post-test is combined with a later re-test, the resulting data is still inadequate for our purposes. The crucial data is NOT the number of words learners know at an arbitrary point in time, but the transitional probability matrix that defines the eventual equilibrium level. It looks as though the answer to our question lies in investigating the structure of the transitional probability matrices induced by our teaching programs, rather than the more obvious raw data that they generate.

Before we can take this interesting idea any further, however, we have to face a number of serious objections to the kind of approach I have outlined here. We will deal with the theoretical objections first.

The basic theoretical objection is that the simple two-state matrix model proposed here is fundamentally inadequate to describe what happens when we acquire vocabularies. It is inadequate in two main ways. Firstly, the simple distinction between words you know and words you don't know grossly misrepresents the real world, and we really need to distinguish between: a) words you know really well, b) words you know partially, c) words you know you knew once, but can't remember any more, d) words you have totally forgotten but would recognise if your memory was jogged, and e) words that you never really learned at all. This objection is easily met. There is no a priori reason why we should not look at transitional probability matrices involving three or more states. The mathematics of these models is more complicated, and there may be serious practical difficulties in deciding which words are deemed to fall into each category - two good reasons for working initially at least with simpler models. In principle, however, the basic argument is the same: if you have a multi-state system, coupled with a probability matrix showing the chances of an item moving from one state to another over a given period of time, then we would expect the system to reach an eventual equilibrium state in which the proportion of items in any one of the states remains constant. The only multi-state model which might affect our argument is one

where one of the states is an absorbing state: i.e. once an item is in that state, it remains there for ever. For instance, if we have a multi-state model where once a word is forgotten it always remains forgotten, and has no chance of spontaneous regeneration, then the system as a whole will eventually be absorbed by this state, and all the words will eventually be forgotten. Models of this type are interesting, but for reasons I don't want to go into here, I don't believe that they apply to learning vocabulary in a foreign language.

The second theoretical argument is more difficult to deal with. The position I have advanced here, clearly depends on an assumption that the transitional probability matrix remains constant, and doesn't change from one time period to another. If it does change in an unpredictable way, then clearly, we cannot predict the long-term outcome of the system. If it changes systematically, then we could predict the long-term outcome of the system, but the calculations would be a great deal more difficult and complex. I don't have any real answer to this objection. It seems to me highly likely that the transitional probability matrix is unstable, and changes with an individual learner's personal circumstances. For example, on a real language learning situation, learners are exposed not just to 100 isolated words, but to hundreds of words in various contexts. My guess is that exposure of this sort increases the likelihood of known words being retained, even if they are not actually encountered. In the last analysis, however, this objection is an empirical question that needs to be investigated. For the moment, we can probably work on the simplifying assumption that the transitional probability matrix is fairly stable, and doesn't change very much over short periods of time.

This, then, brings us back to the practical objections against using these transitional probability matrix models. There are three main objections to the type of approach I have outlined here. The first objection is that there is no obvious way of determining what any individual student's transitional probability matrix looks like. For instance, in my discussion, I have assumed that we are dealing with iteration cycles of one week. We could instead have dealt with iteration cycles of 1 day, 1 year, or whatever. Clearly, it makes a difference what unit of time we choose: forgetting rates over 24 hours are not the same as forgetting rates over 24 days or 24 months. My hunch is that a week is a good period to use. Most educational institutions work on a 7 day cycle, which means that it is relatively easy to organise test-retest sessions at this distance apart. Forgetting over a week is substantial, but far from complete. My suggestion, therefore, is that it would be worthwhile for people working in this field to adopt a convention that the basic unit of time is 7 days. It may turn out that this time unit is inappropriate, but adoption of the convention as a convenient simplification would at least mean that work from different sources could be evaluated within a common framework.

The second objection is more substantial. Assuming we agree mat the interesting data is the underlying transitional probability matrix, rather than the raw sources, how do we determine what figures should be entered into the matrix? There are a number of possible answers to this objection, but again, it seems that the simplest practical solution is to adopt a reasonable convention.

The most obvious solution would be to test a subject immediately after a learning period, and again one week later: you can then calculate the proportion of words the subject knows at the end of the initial learning, how many of them are retained at T2, how many forgotten at T2, and so on, and enter these figures in the appropriate cells of the matrix. In practice, however, I found that this method is not a good predicator of the final equilibrium state: it tends to overestimate the rate of forgetting, and to underestimate spontaneous regeneration. Experience in my laboratory suggests, however, that the transition patterns from T2-T3, T3-T4, T4-T5, and so on *are* fairly stable, and any one of these is a better predicator that the T1-T2 transition. The obvious convention to adopt, then, is to use the transitional probabilities from T2-T3 as the basic matrix. Note, however, that this implies a three-stage testing program. It might be possible in the long-term to adopt a different convention:

that we use the T1-T2 matrix with appropriate compensatory adjustments. At the moment, however, I do not have enough data to be in a position to suggest what these appropriate adjustments might be.

The third practical objection to the program I am suggesting is, of course, the question of objective, neutral tests of vocabulary knowledge. Again, there is no obvious answer to this difficulty. We have found, however, that learners are actually fairly conservative in their judgements about whether they know words or not, and they tend to underestimate their abilities, rather than to over-estimate them. It is possible to exploit this tendency by giving subjects a list of test words, intermingled with a list of non-existent words which closely resemble the real test words. The subject is then simply asked to mark all the words he knows. Subjects rarely mark the non-words in this situation, and this suggests that they are being basically honest about their knowledge of real words. In cases where more than a few percent of me non-words are marked, it can be inferred that the subject is overestimating his knowledge of real words, and an appropriate adjustment to his real-word score can be made. An example of a test on this format will be found in Table 4. there are a number of problems with tests of this type - notably that they measure passive vocabulary, rather than active vocabulary skills. However, they do have some important practical advantages - ease of construction, simplicity of assessment, time necessary for completion, possibility of large sampling rates, and so on - which seem to outweigh most of the theoretical disadvantages. On balance, this type of test looks like the nearest thing we have to a practical minimal test of vocabulary knowledge in an L2, and its widespread adoption as a research tool would be worth considering. Further discussion of this type of test instrument will be found in Meara and Buxton (1987), and Read (1988).

Table 4

Example of a YES/NO vocabulary test

from Meara and Buxton (1987)

Look through the French words listed below. Cross out any words that you do not know well enough to say what they mean.

VIVANT	TROUVER	MAGIR	ROMPTANT
MELANGE	LIVRER	IVRE	FOMBE
MOUP	VION	LAGUE	INONDATION
SOUTENIR	SIECLE	TORVEAU	PRETRE
REPOS	FOULARD	EXIGER	AVARE
ETOULAGE	ECARTER	MIGNETTE	JAMBONNANT
DEMENAGER	POIGNEE	EQUIPE	MISSONNEUR
AJURER	BARRON	CLAGE	TOUTEFOIS
LEUSSE	CRUYER	HESITER	SURPRENDRE
LAIBVRE	SID	ROAMN	CHIC
ORNIR	CERISE	PAPIMENT	CONFITURE
GOTER	PONTE		

In this paper, I have suggested that transitional ways of assessing the effectiveness of vocabulary testing techniques suffer from a major theoretical flaw: they concentrate on superficial phenomena, and neglect the underlying structure of these phenomena. I have suggested that the underlying structure can be seen as a transitional probability matrix, and that the characteristics of these matrices in real L2 learners are worth some detailed study. However, it is unlikely that such study will get very far, unless we adopt some common standards for research. I have suggested three common standards which might help to make diverse programs relatively compatible. These are:

1) adoption of a week as the basic unit of time;
2) adoption of the T2-T3 transition matrix as the standard datum;
3) adoption of a neutral, minimal vocabulary assessment instrument, based in Meara and Buxton (1987).

I must admit that I feel a certain unease in making a suggestion of this sort. Research thrives on certain anarchy, and tends to become routine and boring where external controls are imposed. However, my experience in editing the two bibliographical source volumes published by CILT (Meara 1982, Meara 1987) has suggested very strongly to me that the field as a whole would be more coherent and easier to interpret if a few commonly   agreed

standard conventions were adopted. I hope that colleagues who (quite rightly) object to authoritarianism in research will be able to accept these suggestions in the spirit in which they are intended.

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VOCABULARY LEARNING THROUGH READING: WHICH CONDITIONS SHOULD BE MET WHEN PRESENTING WORDS IN TEXTS?

Caroline Schouten-van Parreren,
Free University, Amsterdam, The Netherlands

1. Introduction

One of the main difficulties facing pupils in foreign language learning, lies in the huge number of words they have to acquire. Although this fact is widely acknowledged, the methods used in school practice are, on the whole, not very effective and even demotivating. In my research - partly based on my thesis (Schouten-van Parreren 1985) - I tried to work out an alternative way of teaching vocabulary. In this paper I will discuss three experimental studies which - though diverse in character - all shed light on the psychological processes involved in vocabulary learning through reading.

Before discussing the relevant aspects of these experiments, I will mention some characteristics which all three experiments have in common. They concern the general theoretical background of the experiments, the research method used, and the reasons for restricting the research to vocabulary learning through reading.

First of all a few remarks concerning the theoretical background of the experiments and me research method used (see Schouten-van Parreren 1988 for more details). The experiments were performed according to the educational principles of action psychology as they have been elaborated in the school of the Soviet psychologist Vygotskij (1986) and in the Netherlands by Van Parreren (1972). One of the main tenets of action-oriented educational psychology is that learning processes cannot be influenced directly, but only by means of exerting influence on the *actions* of pupils. In fact learning can be considered as developing a repertoire of actions. The quality of this repertoire is highly dependent on the quality of educational instruction. If inefficient actions are used (as is often the case in vocabulary teaching) the learning results will be poor in spite of considerable learning effort. Moreover, the motivation of the pupils will suffer. This implies that it is very important to map out actions which lead as efficiently as possible to the required learning results. Moreover, the structure of these actions should be analysed in order to gain

insight into what pupils do and what they are or are not able to do. It may be difficult, however, to identify the required actions and to analyse their structure. A frequently used method to solve these problems is the method of thinking aloud. In this qualitative method (which I used too) generally subjects from different ability ranges are requested to perform a variety of tasks in the target area while thinking aloud. The protocol records thus obtained can then be analysed with respect to errors and/or so-called expert behavior in order to find out which actions are relevant and why.

With respect to the field of vocabulary acquisition, which is rather wide-ranging (see Carter & McCarthy 1988 for a survey), I had to confine myself to some of its aspects. In general, in vocabulary study the following four questions are asked: 1) which words should be learned?, 2) how should new words be introduced?, 3) how should recently learned words be consolidated? and 4) how should a receptive vocabulary be transformed into a productive vocabulary?

Selection and grading of vocabulary (the first question) has already received relatively much attention, so I focused on the problem how words should be learned. In this paper I will mainly deal with the second question regarding the so-called semantisation of vocabulary and incidentally with the third question (the consolidation of vocabulary). The second question is in fact crucial, because a successful semantisation is a necessary condition for consolidation and may, in fact, bring about a certain retention of the new vocabulary. With respect to the transformation of receptive into productive vocabulary a solid receptive base may be considered as a necessary (albeit not sufficient) condition for productive use of the language (cf. e.g. Winitz 1981, Schouten-van Parreren 1989).

So I focused my research on the semantisation of new vocabulary; I will now argue why I narrowed it down to presenting words in text. In the first place (according to the so-called "Zipfs law", Zipf 1935) a distinction should be made between the about thousand most frequent words in a language which account for a large proportion of the tokens occurring in any text, and the less frequent words. Teaching the most frequent words is relatively easy and may, indeed, be dealt with in a number of different ways, e.g. by means of small reading and listening texts, pictures, real objects, miming and elements of the Total Physical Response method (in this method pupils learn through acting in reaction to different commands (Asher 1986). The real problems start, however, with me far greater amount of less frequent words which for a reasonable command of a foreign language should be acquired as well. For a systematic development of such a large vocabulary both extensive and intensive reading seem to offer the best possibilities.

Against presenting isolated words or words in isolated sentences - which is still a rather common practice in schools - a number of theoretical arguments may be put forward:

1)   If the words are presented as isolated elements, there is no point of support, no "cognitive hold" for them in the learners' memory, so despite sometimes considerable learning effort, they are quickly forgotten again.

2) If the words are presented in thematically or especially in alphabetically ordered word lists, pupils will often suffer from interference. This not only hampers learning, but can be decidedly harmful, since unlearning is far more difficult than learning.

3) Isolated words do not present a linguistic reality, as the meaning of a word is in most cases partly defined by me context (Beheydt 1987).

4) Isolated words or words in isolated sentences do not present a psychological reality, because they do not carry a message. For this reason they cannot evoke emotions or involvement in the learner, a factor which plays an often underestimated, but yet important part in long-term acquisition (Leontjew 1979).

Presenting new words in meaningful texts is therefore clearly preferable: many points of support are offered, the chance of interference is reduced and - unlike isolated words or sentences - texts do present a linguistic as well as a psychological reality. The theoretical background of the assumption that new words should be presented in texts and not isolated, may be explained through the theory of trace systems in memory by Van Parreren (1972). To put it briefly, everything we experience or perceive, is stored in memory in the form of traces. These traces are organized in different systems which are more or less strongly segregated. The cohesion within one system depends on the amount and the nature of the connections between the traces within that system. These connections are very important, because they may be used as "access roads" to a trace one is searching for. Now texts offer many possibilities to form varied and meaningful connections between the traces of the new words. In the first place words in texts (unlike words in vocabulary lists) are already so connected. In the second place it is possible to treat words in texts in a number of different ways. This results in a better embedding of the traces in the memory system and therefore in a better recall (N.B. in a number of cases when the meaning of a word is "forgotten", it has not disappeared from memory, but it simply cannot be retrieved.)

Although theoretical support may thus be found for presenting words in texts, details of what is happening when a pupil reads a text with the aim of learning new words, are not known. The first experiment (with adults) was meant to gain insight into the characteristics of the memory processes involved and into some of the relevant textual and psychological conditions mat should be met when presenting words in texts. In the second experiment - a long-term case study with relatively young children - the textual and psychological conditions for learning were explored over a longer time span and with quite different texts, In the third experiment - with pupils of the lowest ability range -these conditions were analysed in greater depth.

2. Experiment 1: Comprehension and retention of foreign language words presented in texts

The first experiment was meant to gain insight into the nature of the psychological processes involved in vocabulary learning through reading. It was organised as follows. Ten Dutch-speaking adults of whom it was known or could be assumed that they were able in introspecting (which is crucial in this type of explorative research) were asked to read foreign language texts which contained a substantial amount of unknown words. In order to gain as much information as possible the texts used were of different types, different levels and in different languages (English, French, German and Italian). The subjects were encouraged to guess the meaning of the unknown words before looking them up in a dictionary. The subjects knew that some of these words would be tested, but were requested not to memorize them explicitly. The words were tested twice: after an interval of one week and after an interval of two months. While recalling the meaning of the words, the subjects had to think aloud. The recall protocols were analysed with respect to a) the ways in which presenting words in texts contributes to a better embedding of new words in memory and b) textual and psychological conditions that should be met when presenting new words in texts.

The results of this experiment shed light on the many opportunities which text reading offers to embed words in meaningful memory systems. Indeed, the subjects could and did use many different access roads to retrieve the required word meaning. So in some cases a new word and its meaning proved to be connected with recollections of the situation in which it had occurred in the text or with recollections of images which were formed of those situations during the reading process. For instance, one of the subjects remembered the meaning of the word "dusk", because the image of evening falling on a salt plain (from the story she read) suddenly occurred to her. Besides, the new word and its meaning sometimes appeared to be connected with recollections of the literal word group or sentence in the text, with recollections of the fact that the word had occurred more than once, with recollections of the fact that a word with the same root had also occurred or with recollections concerning the position of the word in the text. Finally the new word and its meaning were often connected with recollections of emotions or experiences which the words, the text or the actions of the subjects themselves had evoked. The subjects reported, for instance, having experienced some word forms as funny or strange, having felt proud about a correct guess or having felt stupid when looking up the same word twice.

In order to track down the so-called textual conditions the recall protocols were analysed for factors in the meaning and the structure of the words and the text as a whole which could have hampered the retention of the new words. Occurrence in inconspicuous or ambiguous contexts proved to be an unfavourable condition as did the occurrence of two or more words in one text which were similar in form and/or in meaning but not related (cf. Laufer 1988).

In order to find the so-called psychological conditions which should be met when presenting words in texts the protocol records were analysed to trace the actions on the language material which enhance retention of the new words. In general, a three-phaseaction-sequence proved to be most effective, i.e. guessing the meaning of the unknown word, verifying the guess (e.g. in a dictionary) and analysing the word form. By and large the more different ways the words were dealt with, the better they were learned as could, indeed, be predicted by the theory of trace systems in memory (more information about this experiment and examples from the protocol records may be found in a Dutch publication, Schouten-van Parreren 1985).

3. Experiment 2: A case study on vocabulary learning through reading picture books

One of the aims of the second study was to gain more information on the textual and psychological conditions in quite different circumstances. It consisted of a long-term rather loosely organised case study with three Dutch children learning English (and some French and German) by reading and listening. The greater part of the data was collected in a period of two months in which two of the children (a 13-year old girl and a 10-year old boy) read some thirty English books: picture books, early readers written for young (native) children who are learning to read, non-fiction books and graded readers especially written for foreign language learners. A follow-up study over two years involved a third child starting with English, whereas the two older children started with French and some German. The following procedure concerning the selection of the books and the new vocabulary was used. The children could each time choose a book which they would like to read from some 5 to 10 books (from a large and varied stock). They could inspect the books at leisure and ask questions about them; they were also encouraged to put the books in order of interest and to comment on this grading. In most cases the books were read aloud to the children. In some cases no notice was taken of unfamiliar words (if possible); in other cases attention was paid to these words in a variety of ways, such as translating the words, helping the children in guessing their meaning from the context and the word form or helping the children to memorize the words (by quickly going through them once or twice after reading - when necessary showing the context - or by using vocabulary cards).

The results of this study will now be discussed in so far as they throw new light on the embedding of the words in meaningful memory systems and on the textual and psychological conditions for vocabulary learning through reading. As the results of the follow-up study did not add new results with regard to the theme of this paper, I will focus here on the results of the first part of the study. Although this study centred on the textual and psychological conditions some information on the embedding of the words in memory was gained as well. In a number of cases the children appeared to remember   words

through recalling the situation described in the text. Often recollections of an illustration mediated recall. Again recollections of their own emotions or experiences which the words, the text or the actions of the children had evoked, influenced recognition of words. In this study, in particular, the emotions connected with funny, surprising or exciting illustrations and texts exerted an important influence on recognizing words. To illustrate this with an example: the word "handsome" was first seen in the ironic "Jake beckoned to the rest of his ugly crew. "Right, me handsomes (...)" "(from J. Ryan, Pug-wash the Smuggler, London 1976), which was said to a funnily drawn couple of nasty scoundrels. Although "handsome" had been seen only once, it proved to be remembered when it turned up in a totally different context two weeks later (limitations of space prevent me from including illustrations and more examples; they may be found in Dutch publications: Schouten-van Parreren 1988b, Mooren & Schouten-van Parreren 1988).

As to the "textual conditions" the results of the first experiment were confirmed, but also extended, because in this study some insight - at least for this age group - was gained into the significance of text genres for vocabulary acquisition. In particular, reading picturebooks and to some degree reading early readers and non-fiction books appeared to have a number of advantages compared with reading foreign language readers. The children, for instance, liked to experience that they could read the same books which are read by children from countries where the target language is used, at a rather early stage. They even proved to be able to read some German picture books without any help, before their first lesson in German (NB German and Dutch are rather closely related).

More generally speaking, I found the following favourable features which some of the picture books do possess and which some of the foreign language readers do not or only to a smaller degree. Early readers and non-fiction books mostly occupy an intermediate position.

1. Authenticity. The language is more lively, more natural, because it is not hampered by limits of vocabulary and structure.
2. Redundancy. Some readers for foreign language learners suffer from lack of redundancy, especially concerning the structure of the text, when compared with authentic texts. This means that an apparently easy, adapted text may be more difficult to understand than its authentic counterpart.
3. Mutual support of illustrations and text. In picture books and in some of the early readers and non-fiction books close cooperation between author and illustrator is usual (sometimes it is even the same person).
4. Artistic value. Picture books possess an obviously artistic value. This is probably precisely what makes them attractive for different age groups (they have to be attractive for adults - parents - as well as for children).

These factors proved to contribute to a better comprehension and retention of the text and the new words, partly because they brought about a greater emotional involvement in the children.

As to the psychological conditions more information was gained about some of the characteristics of guessing and analysing the word form, which

proved to be important for comprehension and retention (cf. experiment 1). Earlier research (e.g. Clarke & Nation 1980, Van Parreren & Schouten-van Parreren 1981, Palmberg 1987) which focused on the guessing skil, revealed some of the characteristics of guessing and analysing. In this study a great variety of illustrated texts was used. Guessing the meaning of unknown words appeared to occur very often and mostly successfully, especially in the picture books, where, as I pointed out before, text and illustration are closely connected. Even rather difficult words like "except" and "suddenly" were guessed (and remembered) easily in this way.

One of the other strategies (also found in the earlier studies) which at this stage often led to succes, consisted in making use of one's knowledge of the world. However, more often than in the case of guessing the meaning of a new word from pictures the children needed some help in the form of questions like: "What would you do in such a situation?" or "How would you feel in such a situation?"

A third strategy which in this study led to good results, consisted in translating the sentence while leaving out the unknown word (e.g.: No tiger can *bear* to be laughed at by a monkey = Geen tijger kan (het) ... uitgelachen te worden door een aap). This strategy is probably especially relevant for this category of young foreign-language learners, because it helps them to grasp the structure of the sentence as well as the position of the unknown word in it. Other strategies such as using context clues like synonyms, antonyms and descriptions, which are often mentioned in the literature, were used as well, but only rarely, probably mainly because of the nature of the texts used in this study.

The strategy of analysing the word form led sometimes to correct guesses, but more often to failures. Analysing the word form *after* the meaning of a new word had been given, did, however, have a positive effect on retention of the word. In particular, systematically pointing out the most frequent "sound correspondences" (cf. Banta 1981) between in this case English and Dutch proved to be very effective (e.g. th-d: thing=ding, thief=dief, sh-sch:

ship=schip, sharp=scherp, ch-k: church=kerk, chance=kans).

Finally, the case study suggested an additional psychological condition for learning words through reading: the importance of a wide and free choice of books. The procedure of choosing and "grading" books mentioned before contributed considerably to the motivation of the children to read the selected book and probably as well to their retention of the content (cf. Ausubel, 1968, who found already that orienting before reading leads to an enhanced retention of the text). The case study indicated that this also brought about a good retention of a number of words occurring in important passages of the books. Finally, it was remarkable that the amount of interest in the subject appeared to prevail over the degree of difficulty of the language. This phenomenon and the importance of a free and wide choice was also found in a study concerning the relations between leisure reading in the mother tongue (Dutch) and reading French books by Toussaint-Dekker (1987, 1988).

4. Experiment 3: Individual differences in a variety of tasks concerning vocabulary learning and reading

The third experiment was carried out in the larger framework of a project on Mixed Ability Teaching which is still in progress. One of the aims of this experiment was to explore the psychological conditions in greater depth through involving pupils of the first phase of secondary education (12-15 year) of the lowest ability range. The research focused on the differences between (Dutch) pupils of very different ability ranges being educated together when learning French. In order to gain more insight into the nature of the differences with regard to vocabulary learning and reading, I presented 60 pupils with a variety of tasks in this field. In some cases the pupils worked individually and were requested to think aloud. However, if the task allowed it, the pupils worked in pairs of more or less the same ability level in order to create a more natural situation for thinking aloud. The ability level was determined in agreement with the French teachers and in most cases on the basis of a vocabulary test.

The following tasks were used: while reading a story guessing the meaning of unknown words from the context, after having read a story memorizing the meaning of unknown words by means of vocabulary cards, reading a relatively difficult illustrated story, recalling the meaning of new words incidentally acquired (or not) while reading a story and doing a reading strategy exercise involving strategies such as: orienting and mobilising advance knowledge before starting to read, scanning and skimming, and guessing the meaning of unknown words.

The main results of the analysis of the protocol records concerning the embedding of the words in meaningful memory systems and concerning the textual and psychological conditions for vocabulary learning through reading are the following. With respect to the nature of the "embedding" no differences between the pupils were found. Even weak pupils remembered, for instance, the context of a notoriously difficult word like "encore", which they had seen only once (5 months before), because they had very much enjoyed the particular book in which the word had occurred. In other words, when the textual and psychological conditions are favourable, the possibilities of embedding seem, in principle, to be the same for pupils of all ability ranges.

With respect to the textual conditions the findings of the first experiment were confirmed. The results of the second experiment could not be confirmed, because only one type of text (graded readers) was used.

With respect to the psychological conditions more insight was gained into the nature of these conditions for pupils of the lowest ability range. In general, these pupils proved to be weak both in guessing and in analysing. In the protocol records a variety of causes for this result could be traced. They can be indicated here only briefly. As to guessing weak pupils (as compared with their strong counterparts) tended to focus on the unknown word while neglecting the context. Weak pupils often did not take into account, for instance, the structure of the sentence. Characteristically a cue like translating

the sentence while leaving the unknown word out (cf. experiment 2) helped these pupils far more than cues concerning the pictures, the wider context or the situation involved. Weak pupils also experienced difficulties because of their more restricted knowledge of the world (partly socially determined), which in some cases hampered guessing (e.g. "roi" in "le roi Louis XIV"). More generally, weak pupils experienced serious difficulties in integrating information from different sources. In some cases, for instance, the pupils had four sources of information at their disposal: the knowledge they already possess, the text, the illustrations and the cues given in the exercises on the text. Weak pupils were by no means able to systematically explore these four sources and to integrate the information gained. Instead, they tended to be drawn by the source which happened to attract their attention and to cling to it. For instance, two pupils who associated French "ville" with "villa" did not change their hypothesis in spite of the verbal context ("Les villes principales du Maroc sont Rabat, Casablanca et Fès"), in spite of the picture (a small map of Maroc with these three towns indicated, and in spite of the given cue ("Look at the map; Rabat, Casablanca and Fès are three ...").

With respect to analysing the word form also some differences between weak and strong pupils may be mentioned. Weak pupils (again partly socially determined) have a more restricted vocabulary knowledge in their mother tongue, which reduces the number of possible cognates. For instance, French "arriver" is for these pupils no cognate, whereas for strong pupils it is (Dutch, like English, has two more or less synonymous verbs "komen" (to come) and "arriveren" (to arrive). Weak pupils also experience considerably more difficulties in generalizing from already learned words or word groups to slightly different new words or word groups (e.g. from à bientôt to bientôt, from *très* bon to *très* beau, from préférer to préfère).

Finally, pupils of the lowest ability level appeared to need much more time and trials to memorize 15 French words which were presented on vocabulary cards alternately isolated and in a sentence. So this way of memorizing words is for weak pupils certainly no solution. Instead, it seems more appropriate to make a distinction between relevant differences concerning vocabulary learning and reading which may or may not be reduced in the French lessons. It seems, for instance, unlikely that French lessons reduce differences in vocabulary knowledge in the mother tongue and general knowledge of the world. Other differences like integrating information from different sources and guessing the meaning of words from the context, might, however, be tackled more successfully in these lessons. Foreign language teaching should, in other words, capitalize on helping weak pupils to master relevant vocabulary learning and reading strategies. This may even have a positive effect on the learning results of these pupils in other subjects as well.

5. Conclusion

Although in some cases I briefly hinted at implications of these experiments for school practice, limitations of space prevent me from dealing with

this subject more thoroughly. In this paper I hope to have shown in the first place how much relevant information on presenting words in texts- one of the main topics in vocabulary study - may be gained by starting from a psychological point of view and using the method of thinking aloud. In this framework I analysed three rather diverse experimental studies - involving adults, young children, pupils of the lowest ability range and different types of texts and tasks - focusing on the possibilities to embed words in meaningful memory systems and on textual and psychological conditions which should be met when presenting words in texts.

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PROCESSES IN THE DEVELOPING LEXICON OF ADULT IMMIGRANT LEARNERS

Peter Broeder, Guus Extra and Roeland van Hout
Dept. of Language and Minorities
Tilburg University, The Netherlands

1. Introduction

In 1982 an international project was initiated under the auspices of the European Science Foundation (Strasbourg), directed towards the study of untutored second language acquisition by adult immigrants in Great Britain, Germany, the Netherlands, France, and Sweden. Factors which influence the structure and rate of language acquisition were studied from a crosslinguistic and longitudinal perspective. As regards the crosslinguistic dimension, target languages (TL) and source languages (SL) were combined in the following way:

TL:	Swedish	French	Dutch	German	English
SL:	Finnish	Spanish	Arabic	Turkish	Italian	Punjabi

As regards the longitudinal dimension, a selected group of informants was followed and recorded in a variety of language activities for approximately two and a half years at monthly intervals. The language activities consisted of prestructured interviews, retelling or commenting upon video-film fragments, role-plays, selfconfrontations and small-scale experimental tasks. The data collection period, ranging from September 1982 until January 1985, was structured cyclically. For all twenty kernel informants (two for each source/target language pair), three similar cycles of 7-9 recorded monthly encounters took place. These activities resulted in a substantial and diverse audio/video recorded and computerized data base. An extensive description of the goals and design of the project, the linguistic topics of analysis, the data collection procedures, and the informant selection criteria was given in a Field

Manual (Perdue 1984). Six research areas were investigated for each of which a final report has been written:

1. Ways of achieving understanding: communicating to learn in a second language (Bremer et al. 1988),
2. Feedback in adult language acquisition (Allwood 1988),
3. Processes in the developing lexicon (Breeder et al. 1988),
4. Reference to space (Becker et al. 1988),
5. Temporality (Bhardwaj et al. 1988),
6. Utterance structure (Klein & Perdue 1988).

This report summarizes the results of the analyses of the learner's developing lexicon which have been carried out for the Turkish and Moroccan adult immigrants acquiring Dutch as a second language. In section 2 the rationale for studying the learner's use of words is discussed briefly. Section 3 goes into me data base of the present report. Two perspectives on the learner's use of words in the process of acquiring a second language are presented. Section 4 offers a macro-perspective on the richness and variety of the learner's lexicon. A micro-perspective focusses upon the semantic domains of nominal and pronominal reference to entities (sections 5 and 6). Broadly speaking, these two perspectives have a quantitative and qualitative point of departure. The final section (section 7) summarizes the conclusions and gives an outlook on further research.

2. Rationale for studying the learner's use of words

Acquiring the lexicon of a language is conceived by most language learners as their key problem. The availability of a wordstock determines to a large extent the communicative possibilities and limitations of any language learner. This holds especially for adults, who have to cope with learning a second language while at the same time they are able to express mature and complex ideas in their first language. Most adult learners prefer to carry around dictionaries of the target language rather than grammars. Lack of lexicon in me interaction between native and non-native speakers of a language is also perceived as a serious problem by the former. In studying lexical judgements of native speakers of English and German respectively, Johansson (1978) and Politzer (1978) found that native speakers graded lexical errors of learners of these languages as being the most serious and disruptive for communication.

Given the fact that language acquisition cannot take place without grasping the lexicon of a particular target language, and taking into account that the acquisition of this lexicon is conceived as a major communicative problem by both native speakers and language learners, one would assume that research on second language acquisition should devote no less energy to the lexicon than to syntax, morphology or phonology. However, until very re-

cently, this was not the case. Classic studies on second language acquisition such as those reported on by Hatch (1978), Ritchie (1978), and Dulay et al. (1982), have hardly paid any attention to the learner's acquisition of words at all. Although there is an abundance of studies on 'order of acquisition', most of these studies focus upon morphology or syntax. Virtually no hypotheses have been formulated and tested on any kind of order for acquiring the lexicon in a second language.

Several reasons can be put forward to explain the sparsity of this type of research. First of all, the lexicon did not play a central role in grammatical theory, and research on language acquisition was an accurate reflection of this bias. On the other hand, research in the field of first language acquisition has ignored developmental aspects of the lexicon to a far lesser degree. Both quantitative and qualitative dimensions of children's acquisition of words in a first language have been taken into account, as can be derived from survey studies done by Clark (1983), Wanner & Gleitman (1982: 319-425), and De Villiers & De Villiers (1978: 121-150). Secondly, studying the changing lexicon of language learners over time presupposes rather large data bases. Collecting, transcribing and analyzing such data bases is a time consuming task. And thirdly, studies on the lexicon in a second language have traditionally been focused more upon teaching than learning. A paradoxical consequence of this bias shows up in criteria for selecting and ordering words in second language instruction. Van Els et al. (1984: 203-218) discussed a whole range of such criteria with hardly any reference to the potential relevance of empirical data on the developing lexicon of second language learners themselves.

The lack of attention for research on the acquisition of the lexicon in a second language has not gone totally unnoticed. Levenston (1979), Meara (1980), and Laufer (1986) have pointed to an unjustified 'discrimination'. A change of attitudes can also be observed in Hatch (1983: 58-74) and recent special journal issues like Studies in Second Language Acquisition (1987, 9-2). Meara (1983) composed an excellent bibliography of lexicon studies in a second language. The bibliography consisted of annotated references to publications which appeared between 1960 and 1980. The focus here was emphatically on the lexicon of rather than the lexicon for second language learners. Meara did not take into account intuitive claims about how words can best be learned or taught. His bibliography makes it clear that the majority of empirical lexicon studies consists of one-spot accounts of second language proficiency or bilingualism in experimental and frequently replicated tasks, above all word association tasks. Meara (1987) offers a follow-up of his first bibliography, covering the work in the same field between 1980 and 1985 The recent increase of interest in this field is reflected in a larger amount of references for this five year period than for the twenty years covered in Meara's first volume.

3. Informants and data base

Kernel informants in the present study are four adult learners of Dutch: Ergün and Mahmut, two Turkish men, and Fatima and Mohamed, a Moroccan woman and man respectively. At the time the data-collection started the socio-biographical profile of these informants can be summarized by the following characteristics. They were between 18 and 30 years of age. They had legal status, no native target language speaking spouse and no children of school age. The level of education was limited. The proficiency in Dutch was very low and no tuition was received. The informants were monolingual and had lived in the Netherlands between seven and twelve months at the time of the first recording in the project. Further socio-biographical characteristics of the four informants are given in Breeder et al. (1988).

For each informant two types of language activities were selected in each of the three data collection cycles. The first language activity was free conversation marked by loosely structured dyadic interactions between an informant and a native speaker of Dutch. The duration of this language activity varied between 45 and 90 minutes. The second language activity was film retelling/commenting. The informant was shown a videoclip from a silent movie. Afterwards the informant was asked to retell/comment on the content of the videoclip to a project member who was a native speaker of Dutch. In the first cycle the informants saw fixed parts derived from a Harold Lloyd silent movie. In the second and third cycles they saw parts from Charlie Chaplin's 'Modern Times'. The duration of this language activity varied between 20 and 40 minutes.

The activities chosen were more or less opposite with respect to the amount of pre-structuring and stimulus control. Film retelling is a structured task in which the content and the frame of a story is determined by a fixed stimulus. In principle the role of the native speaker was restricted to stimulating hints and clarifying questions. The roles of native and non-native speakers in free conversation were much more flexible and open, and the topics of conversation shifted rather freely.

Given the three cycles, all informants participated three times in the two types of activity mentioned, approximately one, two and three years after their arrival in the Netherlands. With four informants, three cycles and two types of activity a total of 24 activities have been analysed.

4. Richness and variety of the lexicon

4.1. Measuring vocabulary

A quantitative approach of lexical richness and variety can offer a macro-picture on the learner's lexicon. In the lexicometric and stylostatistical literature a variety of measures has been proposed for spelling out the lexical characteristics of a written and spoken text. The lexical variety or richness of

a text is usually defined as a function of the number of types (V) in relation to the number of tokens (N). The number of tokens constitutes the text length. For the words used by our informants, a set of 11 lexical measures has been selected originally, mainly based on Menard (1983).

The type/token ratio is by far the most widely used measure. Surveying the literature on child language, Richards (1987) concludes that in spite of their popularity type/token ratios have frequently failed to discriminate between children at widely different stages of language development. Type/token ratios yield especially biased results if the texts investigated differ considerably in the number of tokens (cf. Menard 1983, Vermeer 1986). As we showed in Breeder, Extra & Van Hout (1987) 3 measures of lexical richness turned out to be most promising:

(b) Guiraud's index (V/√N, which in fact is comparable to Carroll's (1964) diversity measure V/√2N),
(c) The number of types, provided the texts do not differ too much in the number of tokens, and
(d) the Theoretical Vocabulary. This is the expected number of types for a specified number of tokens and it is calculated on the basis of the number of types and tokens found in a concrete text (cf. Menard 1983: 107-117). For a more thorough discussion of this lexical measure see Breeder et al. (1988).

In any lexical study on richness and variety information should be provided about the operationalisation of basic categories such as word tokens, word forms, lemmas or other basic counting units. Operationalisation problems will be not discussed here. More information can be found in Breeder et al. (1986, 1988). The steps taken in the operationalisation of the lexical data base can be summarized as follows:

First, concordance lists are made which give the word forms used by the learner in alphabetical order, together with the contexts and the frequency of the word forms. Next the list of word forms is 'cleaned up' by excluding, for instance, false word starts, and is converted into a list of word tokens; a word form is defined as a class of identical word tokens. Finally the word forms are coded and stored in the form of records in which a fixed number of fields specifies the word form, the word class, the hypothesized learner meaning, the lemma, the frequency, and the place of occurrence (informant, cycle, encounter, activity). The lemma field contains dictionary entries of the target language.

Excluded from the data base are false word starts, but included are word repeats. They are included because repeats can be viewed as a determining property of spontaneous speech in general and of the spontaneous speech of language learners in particular (cf. Kotsinas 1983: 81). These repeats contain self-repeats as well as other-repeats (e.g., imitations of the native speaker/interlocutor).

Every transcript of an activity has a specific number of different word types. The frequency of a word type is the sum of the frequencies of the word

forms belonging to that word type. The total frequency of the word types in a text or the number of tokens is the sum of the frequencies of all word types together. A word type is defined as the combination of the entry in the lemma field and the grammatical word class code. Any mismatch between these elements implies that the records in question contain different word types. For instance, 'werk' (work) coded as a noun is not the same word type as 'werk' (work) coded as a verb. As a consequence, one word type may enclose different word forms.

4.2. Global lexical measures

In selecting the best measure of lexical richness, the danger of circular argumentation is not fictitious. Because of the absence of clear and directly comparable findings in other studies, one is inclined to rely on the attractiveness and interpretability of the results of the measures applied. Nevertheless, it is obvious that a valid and reliable measure should signal progress in vocabulary in our data. It is to be expected that at least some of the informants should show progress in the time period they are observed.

The total number of Dutch tokens present in the data base earlier described is 39,169. It concerns tokens belonging to 'intended Dutch'. The amount of tokens belonging to another language is 398, which is hardly 1% of the total amount of tokens.The distribution over informants, cycles and activities of Dutch tokens is given in Table 1.

Table 1: Number of tokens over informants, cycles and activities

inform.	film retelling			free conversation		
	cycle 1	cycle 2	cycle 3	cycle 1	cycle 2	cycle 3
Fatima	369	642	341	1612	1382	1167
Mohamed	745	904	843	1606	2864	2025
Ergün	963	1235	1065	3509	3112	3150
Mahmut	891	753	937	3625	2729	2673

The numbers of tokens appear not to increase over time. The most clear-cut difference is to be found between the two activity types. The number of word types is given in Table 2.

Table 2: Number of types (lemmas) over informants, cycles and activities

inform.	film retelling			free conversation		
	cycle 1	cycle 2	cycle 3	cycle 1	cycle 2	cycle 3
Fatima	96	134	97	232	230	217
Mohamed	136	160	174	241	335	317
Ergün	139	189	82	406	363	354
Mahmut	155	148	163	369	347	364

Table 2 again shows a clear difference in number between the two activity types which is, at least partly, the logical consequence of the difference in the number of word tokens produced by the informants. No cycle effect seems to be present in the raw number of types, but it is possible that a cycle effect emerges when the number of types is related in some way to the number of tokens. When this is done by calculating the type/token ratio, we see the effect mentioned before that differences tend to be levelled out.

The most promising results in our data were found for the Theoretical Vocabulary and Guiraud's index. Fortunately, independent evidence exists in favour of the validity of both measures, Vermeer (1986) found that of the several lexical measures he applied Guiraud's index produced me highest correlations with a vocabulary test and with other language proficiency tests. Menard (1983) compared the quality and properties of a range of lexical measures. He did not analyse texts of language learners, but had a positive judgment on the Theoretical Vocabulary as a measure for lexical richness.

Table 3 gives the results for the Theoretical Vocabulary measure based upon a reduction of the text length to a standard of 100 tokens. That is to say, the expected numbers of types given a sample of 100 words out of the total set of words produced by the informants in the related language activity. Table 4 gives the results for the index of Guiraud ($V/\sqrt{N}$).

Table 3: Theoretical vocabulary for 100 tokens over informants, cycles and activities

inform.	film retelling			free conversation		
	cycle 1	cycle 2	cycle 3	cycle 1	cycle 2	cycle 3
Fatima	48.830	49.305	48.265	54.260	53.053	60.371
Mohamed	50.040	48.434	52.959	51.636	58.377	60.047
Ergün	45.653	52.773	53.016	56.000	62.154	60.598
Mahmut	51.256	53.169	53.613	57.197	59.767	63.049

Table 4: Index of Guiraud over informants, cycles and activities

inform.	film retelling			free conversation		
	cycle 1	cycle 2	cycle 3	cycle 1	cycle 2	cycle 3
Fatima	4.998	5.289	5.253	5.778	6.187	6.352
Mohamed	4.983	5.322	5.993	6.014	6.260	7.044
Ergün	4.479	5.378	5.577	6.854	6.507	6.307
Mahmut	5.193	5.393	5.325	6.106	6.642	7.040

An analysis of variance (two factors with repeated measures on one of the factors (= cycle)) was carried out to trace the effects of cycle, activity type and the interaction between those two factors on the vocabulary measures. The results for number of tokens, number of types, Theoretical Vocabulary (100 word tokens) and Guiraud's index are presented in Table 5.

Table 5: Analysis of variance of the lexical measures

	mean square	error	F	df	p
tokens					
activity	16323452.04	568198.38	28.73	1,3	.013
cycle	70933.17	134375.17	0.53	2,6	.615
cycle*activity	78398.17	106595.83	0.74	2,6	.518
types					
activity	167000.17	2977.61	56.09	1,3	.005
cycle	577.17	729.50	0.79	2,6	.495
cycle*activity	282.17	680.28	0.41	2,6	.678
Theor.Voc.100					
activity	331.50	2.21	150.19	1,3	.001
cycle	43.44	4.58	9.48	2,6	.014
cycle*activity	5.20	5.43	0.96	2,6	.435
Guiraud					
activity	8.06	0.08	101.32	1,3	.002
cycle	0.63	0.07	8.74	2,6	.017
cycle*activity	0.02	0.15	0.17	2,6	.849

The number of tokens and types only produce a significant effect for activity type. Both Guiraud and Theoretical Vocabulary produce a significant effect for activity types as well as for cycle. The cycle effect indicates lexical growth over time. No interaction between the activity type and cycle is found.

The effect for activity type is fairly self-evident. This effect is reducible to the difference in communicative behaviour within the two activities investigated. Free conversation allows room for topic variation, which is accompanied by selecting words from a variety of semantic domains, whereas the domain of discourse in film retelling is restricted by the stimulus events in the film shown. However, the cycle effect is less outspoken than the activity effect. The lexical progress as indicated by the lexical measures is consistent but not spectacular. The results suggest that especially Mohamed and Ergün make progress over time; Guiraud's index marks them as the most advanced learners in the third cycle. In general Fatima has the lowest scores.

Further investigation of the distribution of morpho-syntactic word class categories (noun, verb, etc.) revealed that our learners even at the start of their acquisition used lexical items from a wide range of word class categories (see Breeder et al. 1988). In this respect, their lexical development seems quite divergent from early word class patterns observed in first language acquisition. With respect to activity type it turned out that again it plays an influential role in the distribution of word classes, and overshadows developmental patterns over time.

5. Word-formation processes

5.1. Main questions

Language would be a rather uneconomical means of communication if we always had to invent new words for new concepts we would like to refer to. Take the Dutch verb stem 'teken' (draw) which refers to an activity. It would be hard for any language learner if reference to this activity in the past, to a male or female agent of this activity, or to the object of this activity had to be expressed by totally unrelated words. In fact, in these cases past reference, (fe)male agent reference, and object reference are expressed by suffixes with rather wide applications: 'teken-de', 'teken-aar', 'teken-ares', and 'tekening' respectively. Moreover, the combinatory possibilities of words provide the language learner with expedient devices to use a restricted set of words efficiently. Consider for example the following compounds with 'teken':

'teken-boek' (drawing book), 'teken-bord' (drawing board), 'teken-doos' (drawing case) and 'teken-tafel' (drawing table).

Broadly speaking, we can divide the basic word-stock of a language into an unbounded set of free morphemes (lexemes) and a finite set of bound morphemes (affixes). Various processes may be applied to extend this basic word-stock in a language, e.g.: (1) creation of new word roots; (2) composition:

combination of two (or more) already existing lexemes; (3) derivation:

combination of lexemes and one or more affixes; (4) conversion of existing lexemes to other word classes (zero derivation). We will focus here on the processes mentioned under (2) and (3), and in particular on word-formation processes with respect to nouns.

Composition is generally referred to as a semantically transparent word-formation process and derivation as an opaque one. In the case of derivation, the language learner has to combine free morphemes with abstract bound morphemes. The latter ones never occur as independent words, they are most commonly unstressed, and they have rather subtle - and sometimes also ambiguous - meanings (for Dutch, see De Kleijn & Nieuwborg 1983: 363-375). Eve dark and associates have contributed in a long-term series of studies to our insights into these processes in first language acquisition. On the basis of a variety of child language data dark (1981; 1983) showed that transparent, simple, regular, and productive word-formation devices appear early in language acquisition. At the same time, these early devices compensate for opaque, complex, irregular, and unproductive word-formation devices. A preference of compositional over derivational word-formation devices can also be observed in processes of pidginization and creolization (cf. Mühlhäusler 1986, Schumann et al. 1987). It is therefore to be expected (a) that composition precedes derivation in adult language acquisition, and (b) that adult language learners make a creative and innovative use of a variety of compositional means, also in expressing reference to entities where the target language would prefer or use derivational means. These matters will be discussed in section 5.2.

In compositional devices, combining nouns to make reference to entities possibly plays a central role. Different languages make use of different devices. A distinction can be made in the utilization of nouns for compounding (e.g., noun plus noun) vs. circumscription (e.g., noun plus preposition plus noun), although this distinction may often be problematic in learner varieties.

With respect to compounding word-formation processes, a distinction should also be made between hierarchical and non-hierarchical (or linear) compounds. Hierarchical compounds are based on a right or left hand head rule (see Selkirk 1982: 19-27). The three languages involved clearly differ in their use of compositional devices. The basic pattern for combining nouns in Dutch as the target language under consideration can be described in terms of modifier plus head. However, other patterns may occur as well. Rather infrequently in Dutch, there may be no hierarchical relationship between the lexemes (e.g., 'hotel-restaurant'). Moreover, there may be more than two lexemes involved (e.g., 'house door bell'). In addition, circumscription often occurs in Dutch, in which two nouns are connected by a preposition (often 'van' (of, from)). In this case, the head precedes the modifying part. With respect to compositional devices for refering to entities, the following differences between spoken standard Arabic, Turkish and Dutch appear to exist:

	Arabic	Turkish	Dutch
modifier + head	-	+	+
head + modifier	-	-	-
linearity	-	+	-
circumscription	+	-	+

(+ = common, - = only in rare cases)

Circumscription is marked by a prepositional connector whenever the head noun precedes the modifying noun. Given the ambivalence of Dutch, it is to be expected that various differing source language effects may emerge in the preferences of our language learners. The compositional devices found with respect to nouns will be discussed in section 5.3.

5.2. Derivation versus composition

The analysis of the data base for the four informants focussed upon in the present study clearly points out that they hardly use derivational means. Occasionally some suffix types can be found. However, in most cases it is doubtful whether these devices are used productively. Several suffix types can be considered as unanalyzed lexicalizations or formulas (e.g., 'gevangenis' (prison), 'kapitalist' (capitalist), or they are in fact direct imitations of the native speaker/interlocutor. The following sequence clearly shows the opaque character of derivational means. Fatima uses non-agent 'bakkerij' (bakery) for agent reference 'bakker' (baker):

Fatima: Die ander vrouw gezien die meisje	That other woman seen that girl
NS: Ja	Yes
Fatima: Zeg van die bakker/ bakkerij	Says of that baker/ bakery
NS: Ja	Yes
Fatima: Die bakkerij loop achter die meisje	That bakery walk after that girl
NS: Ja en dan?	Yes and then?
Fatima: Dan die bakkerij pak die meisje (Cycle 3)	Then that bakery take that girl

NS = Native Speaker

The question now is whether our language learners use compositional means where native speakers of the target language would prefer or use derivational means. It appears to be no problem to find occurrences in the data base where the informants use a transparent head noun with a second noun as

modifier instead of the more opaque derivational device in standard target language use. Some obvious examples are:

cycle	learner variety		target variety	
Fatima				
3	man-Marokko	man-Morocco	Marokkaan	Moroccan
3	buitenland-mens	foreign-person	buitenlander	foreigner
Ergün				
1	paard-man	horse-man	ruiter	rider
1	Turkije-mensen	Turkey-people	Turken	Turks
Mahmut				
1	Holland-mensen	Holland-people	Hollanders	Dutchmen
3	brood-baas	bread-boss	bakker	baker

For Mohamed no clear examples of noun-noun combinations can be found, in which the combination used can be directly translated into a Dutch derivational counterpart. Nevertheless, he too shows comparable devices. The findings support the preference for compositional, innovative devices over derivation in early learner varieties.

This preference is further supported by a scanning of the whole data base (all 27 encounters) on transparent head nouns for indicating agents (e.g., 'mens' (person), 'man' (man), 'vrouw' (woman)), instruments (e.g., 'machine' (machine), 'auto' (car)), and places (e.g., 'kamer' (room)). All informants use such nouns to make compounds in a creative and innovative way. Only in a later stage of the acquisition of Dutch did the informants grasp the linguistic means and referential function of derivational devices. In many respects Mohamed is the most advanced learner of the Dutch informants. This can also be traced back in the way his lexical field for reference to inhabitants develops. In Mohamed's early encounters, the same picture emerged as for the other informants: derivational devices are still lacking and Mohamed has a marked preference for modifier-head compounds (including compound-like devices with a not inflected adjective plus a noun). Over time, successive standard derivational devices were used by him for referring to inhabitants. First Mohamed discovered the devices '-en' and '-aan'. These devices resulted in the use of the standard word forms 'Marokkaan' (Moroccan), 'Marokkanen' (Moroccans) and 'Turken'(Turks) instead of 'Marokkaansmens/man' (Moroccan person/man), 'Marokkaansmensen' (Moroccan people) and Turksmensen' (Turkish people) respectively. Next, Mohamed discovered the derivational device '-er', resulting in the use of 'Duitser' (German) and 'Hollanders' (Dutchmen) instead of 'Duitsmens' (German person) and 'Hollandsmensen' (Dutch people) respectively. Apart from the successive

build-up of derivational devices, modifier-head compounds can still be found Mahmut regularly. Finally, the use of standard-like derivations becomes the rule and the use of innovative compositions the exception.

5.3. Order principles in noun-noun compounds

In 5.1 different principles for composition in spoken standard Arabic, Turkish and Dutch were mentioned. The question is whether differences in the current devices in the source language of the informants have some effect onthe preferences in their target language varieties. The set of differences is especially interesting because Dutch appears to be marked by ambivalence with respect to the position of the modifier. In compounds the modifier emerges left of the head noun, in circumscriptions the modifying noun emerges to the right of the head noun, linked by a preposition. Left oriented noun-noun compounding is a regular device in Turkish; circumscription is a regular device in spoken standard Arabic.

The frequencies of the various noun-noun types used by our informants per cycle are as follows:

		Fatima			Mohamed			Ergün			Mahmut		
		C1	C2	C3	C1	C2	C3	C1	C2	C3	C1	C2	C3
N+N:	mod. + head	11	11	4	2	5	4	20	9	7	25	16	16
X+N+N:	compl. mod. + head	0	0	0	0	0	0	2	3	0	4	4	4
N+N:	head + mod.	0	0	2	0	1	0	2	0	1	3	1	1
N+N:	linearity	1	0	0	0	0	0	1	0	0	1	2	1
N+prep+N:	circumscription	6	8	2	0	5	1	0	0	0	0	0	0
Total		18	19	8	2	11	5	25	12	8	33	23	22

Noun-noun compounds, predominate in all learner varieties in particular modifier-head compounds. Nevertheless, the opposite principles in Arabic andTurkish do indeed show up in distinct preferences of our learners of Dutch. Only Ergün and Mahmut, me two Turkish learners, make use of right-head-oriented compounds with a complex modifier, e.g.:

cycle learner variety			target variety	
Ergün				
1	allemaal-kleine-kinder-feest	alle-little-children-party	feest met allemaal kleine kinderen	party with all littlechildren
2	auto-monteur-werk	car-mechanic-work	werk als automonteur	car mechanic

Mahmut

3	politie-buro-directeur	police-office director	chef van het politieburo	director of the police office
3	andere-mensen-garage	other-people-garage	garage van andere mensen	other people's garage

Fatima and Mohamed use relatively less compounding word-formation devices; instead these Moroccan learners prefer circumscription in which the head is on the left side (N + prep + N). Such circumscriptions are common in spoken Arabic, but they occur only in rare cases in spoken Turkish. In standard Dutch these circumscriptions would commonly be expressed by noun compounds. Compare the following occurrences for the Moroccan informants and the normative counterparts:

cycle learner variety		target variety	

Fatima

1	kerk van Marokko	church of Marocco	moskee	mosque
2	boek van baby	book of baby	babyboek	baby-book
2	kleren van baby	clothes of baby	babykleren	baby-clothes
2	patroon van baby	pattern of baby	babypatroon	pattern for the baby clothes
2	auto van *police*	car of *police*	politie-auto	police car
2	sleutel van fiets	key of bike	fietssleutel	bike-key
2	winkel van sigaret	shop of sigaret	sigarenwinkel	cigar shop
3	brief van werk	letter of work	arbeidscontract	labourcontract
3	kleren van kinder	clothes of childer	kinderkleren	childrenclothes

Mohamed

2	brief van werk	letter of work	arbeitdscontract	labourcontract
2	baas van winkel	boss of shop	winkeleigenaar	shopkeeper
2	directoeur van die gevangenis	director of that prison	gevangenis-director	director of prison
2	man van die disco	man of that disco	disc jockey	disk jockey
2	meneer van die winkel	mister of that shop	winkeleigenaar	shopkeeper
3	fabriek van boten	factory of ships	sheepswerf	shipyard

The data show clear evidence of a source language effect, an effect which is also found in other studies (e.g., Van Helmond & Van Vugt 1984, Hughes 1979). The preferences of our informants in the order of modifier plus head seems to be correlated with a comparable preference in the order of object and verb. In standard Dutch the underlying word order is SOV with a Hout (1987) and Coenen (1988) point out that the verb position in the source

language of the informants (SOV for Turkish vs. (S)VO for Arabic) corresponds with similar preferences for verb position in their Dutch utterandes.

6. Pronominal reference to person

6.1. Predictions for order of acquisition

The central question in this substudy was how the linguistic devices for pronominal reference to person are acquired over time (cf. Wiesemann 1986 for a crosslinguistic perspective on pronominal systems). In particular we focussed on the acquisition of subject/object pronouns and possessive pronouns. It takes time to acquire the ostensibly simple system of reference to person and for several reasons pronominal reference is a very promising topic of developmental crosslinguistic research. First of all, pronominal means occur frequently and can be identified rather easily in language data. Moreover, pronouns constitute a delimited and well-specified domain. Ultimately they form a complex task for children or adults who acquire a first or second language, as a result of contextual and referential conditions in which a variety of different forms is used (cf. Henderson 1985, Maratsos 1979).

The conditions for selecting specific personal pronouns are not only complex, they are also to a certain extent arbitrary. Although all languages make use of functional differentiations in person and number (with at least four sets and two sets of different forms respectively), some languages show pronominal specifications that are lacking in other languages (cf. Head 1978, Ingram 1978). Comparing the pronoun systems of the spoken varieties of the three languages under investigation yields the following list of pronominal distinctions (a full description of the three pronoun systems is given in Breeder et al. 1988):

Distinctions for	person	number	status	gender	case	full/red.
Arabic	123	SP	-	23-S	S-rest	-
Dutch	123	SP	2-SP	3-S	SOP	+
Turkish	123	SP	2-S	-	SODP	+

-All languages mark first, second and third person (person 123).
-All languages mark singular and plural (number SP).
-Status distinctions are only available in Dutch and Turkish, in both languages at least for second person singular (status 2-S).
-Only Arabic and Dutch mark gender distinctions, in both languages at least for third person singular (gender 3-S).
-All languages mark subject pronouns (case S) vs. other pronouns; in addition, Dutch marks object vs. possessive pronouns (case OP), and Turkish marks object vs. dative vs. possessive pronouns (case ODP).

-Finally, Dutch and Turkish mark full vs. reduced lexical forms; in all cases, the full forms are phonetically more prominent than the reduced (clitic) forms by virtue of their more extensive phonetic shape. Whenever a pronoun gets prosodic prominence (e.g., heavy stress), the full form of the pronoun is required, - a circumstance which adds to the perceptual salience of the class of full forms.

Language learners will not start with all the relevant distinctions in the target language at the same time. The intriguing question is with which they will begin and why. In answering this question, a distinction of linguistic form and referential meaning is a basic requirement. By virtue of this distinction, our earlier question can be formulated more precisely:

-which limited set of forms is used in early learner varieties and what are the referential meanings of these forms?
-how is this initial and limited set expanded over time?

We examined a number of interacting factors which determine the structure of the acquisition of a pronoun system by adult second language learners. Specifically, we considered (a) properties of the target system, (b) interaction between the source and target system, and (c) cognitive maturation.

(a) Properties of the target system

From a semantic point of view, subject and object pronouns are individual terms, that is, they denote individuals, whereas possessive pronouns are relational terms, that is, they denote a possessive relation between entities. This - all other things being equal - makes the category of possessive semantically more complex than the category of subject or object. Furthermore, possessive forms generally contain more information than subject or object forms in that they preserve the information of person and number coded by the subject or object forms and in addition contain information of the possessive relation. This makes possessive forms semantically more complex than subject or object forms. Finally, the interaction between pronominalization, grammatical subject and object, and given and new information tends to promote subject forms rather than object forms. Thus, the subject NP is often used to maintain reference to a topic (e.g., a person, an object, a concept), whereas the VP is used to convey new and focussed information.

According to semantic principles, plural emerges as semantically more complex than singular in that plural pronouns refer to more speakers and singular pronouns to only one speaker. Thus, 'we', for example, is more complex than 'I' in that 'we' refers to the speaker and some other person(s), whereas 'I' refers to the speaker only. Moreover, masculine forms are more basic than feminine forms in Dutch, because they can be used in a wider range of situations or contexts:

(i)generic reference to any person of a kind that could either be male or female is made by a masculine form rather than a feminine form (e.g., 'de speaker...hij...' rather than '...zij' ('the speaker...he...' rather than '...she...'));
(ii)pronominal reference to singular objects which carry the definite article 'de' (the) in Dutch is most commonly made by masculine forms (e.g. 'de stoel ... hij" ('the chair ... he')).

Finally, Dutch makes a systematic distinction between lexically full and reduced pronouns. Given the perceptual salience of full forms to non-native speakers, these forms will be acquired early.

From these principles the following predictions can be derived with respect to the order of acquisition:

prediction I: subject forms are acquired before object forms
prediction 2: subject forms are acquired before possessive forms
prediction 3: object forms are acquired before possessive forms
prediction 4: singular forms are acquired before plural forms
prediction 5: masculine forms are acquired before feminine forms
prediction 6: full forms are acquired before reduced forms

These predictions also imply the direction of the functional overextensions to be found. For example, it is to be expected that subject forms will be used in object function, whereas the reverse, object forms in subject function will not occur.

(b) Interaction between source and target system

A well-known assumption is that similarities between a source and target language will facilitate the acquisition of the target system, whereas differences will make the acquisition task harder. According to the typological differences discussed earlier between the three languages under consideration, the following predictions can be derived:

prediction 7: masculine/feminine distinctions will be easier for Arabic than for Turkish learners of Dutch
prediction 8: object/possessive distinctions will be easier for Turkish than for Arabic learners of Dutch
prediction 9: the distinction between full and reduced forms will be easier for Turkish than for Arabic learners of Dutch

(c) Cognitive maturation

A characteristic feature of adult second language learners is that - in contrast to children acquiring their first language - from the very start of their acquisition career they by and large already possess the cognitive prerequisites for the linguistic acquisition task. Thus, cognitive development can

be expected to play a significantly smaller role in adult second language acquisition than in children's first language acquisition. A case in point is the particular perspective shift required to grasp the meaning of the first and second person pronouns I and YOU. While there is ample evidence that this cognitive prerequisite plays an important role in the development of an initial pronoun system in children's first language acquisition, there is little reason to assume that the same factor should play a significant role in adult second language acquisition. From this we derive the following prediction:

prediction 10: there will be few or no instances of deictic shift.

6.2. Results

The total number of pronominal word forms under investigation, derived from a data base of four informants across three cycles and two activity types (cf. section 2), was 329 for Fatima, 1371 for Mohamed, 1391 for Ergün. and 1074 for Mohamed. The target language related principles 1-6 were generally confirmed for all informants. However, prediction 5, about the order of acquisition of masculine and feminine pronouns, was discontinued for Fatima who was the only female informant. Fatima uses the form 'haar' (her) from a remarkably early stage of acquisition onwards.

Functional overextensions of pronominal word forms were evidenced as well:

Predicted overextension	Fatima	Mohamed	Ergün	Mahmut
P1: subj. form with obj. function	+	+	-	0
P2: subj. form with poss. function	+	+	+	+
P3: obj. form with poss. function	+	+	-	0
P4: sing. form with plur. function	+	+	+	+
P5: masc. form with fem. function	+	0	0	+

A '+' indicates that the predicted overextension could be evidenced, a '-' that it was contradicted (in fact the reverse tendency occurred), and a '0' indicates lack of evidence. Note some examples of functional overextensions in the following sequences:

Mohamed: Die meisje bij zij *oncle* hè/ zij oom/ bij hij (cycle 1)	That girl with she *oncle* bij eh/ with she uncle/ with he
Mahmut: Ja jij dochter hè	Yes you daughter eh
NS: Ja	Yes
Mahmut: Jij dochter en uh jij broer zoon he	You daughter and eh you brother son eh
NS: Ja	Yes

Mahmut: Hoef niet trouwen (cycle 2)	Need not marry
Mohamed: Die man hij wil weg.	That man he wants away.
Hij lach niet met hem vrouw (cycle 2)	He laughs not with him wife
NS: Hoe kijkt die moeder?	How does that mother look?
Ergün: Hij is bijna, hij is bang (cycle 3)	He is almost, he is afraid

NS = Native Speaker

The source language related predictions 7-9 were discontinued. The relevant distinctions were hard to learn for all informants, in spite of different conditions within the two source languages. Finally, deictic shift (prediction 10) proved indeed to be rather exceptional. However, some occurrences could be found, especially in the early stages of acquisition. Mostly it concerned repetitions of the native interlocutor. Compare the following sequence from Ergün:

NS: Maar wat zegt jouw vader dan?	But what says your father then?
Ergün: Jouw vader niks drinken alcohol (cycle 2)	Your father nothing drink alcohol

NS == Native Speaker

As an overall result, target language related principles were shown to be more influential determiners of acquisition than source language related principles. Moreover, the early acquisition of lexically full pronouns (prediction 6) proved to be an interesting case of competitive principles. Although reduced pronouns have very high frequencies in target language varieties of native speakers in comparison with full pronouns (cf. De Jong 1979), the latter appear to emerge as first candidates in the process of language acquisition as a result of their higher perceptual salience.

Functional overextensions as mentioned above, were also evidenced in earlier studies on both first and second language acquisition by children. The results show that in spite of L1/L2 distinctions and age differences, remarkably similar strategies can be observed in how learners do things with few words.

7. Conclusions and outlook

7.1. In retrospect

Language acquisition processes can only be observed through the window of particular activities performed by particular interlocutors. The effects of two main factors in our research design (time/cycle and activity type) could first of all be tested in the quantitative macro-study (section 4) by two rather successful measures of lexical richness and variety, viz. Guiraud's index and Theoretical Vocabulary. Primary concepts in the analysis were the number of types (lemmas) and the number of tokens used by a language learner in a specific language activity. A time effect was observed for the group of learners as a whole, which implies that a general increase in lexical richness was found. The activity type turned out to be an influential factor. Free conversation allowed room for topic variation, and thus for lexical variety, whereas film retelling was more restricted by the stimulus events in the film shown.

Moreover, at the level of particular word class categories, it was found that our learners used words from a wide range of word class categories. The word class distribution appeared to be strongly influenced by activity. This highly adaptive behaviour of our language learners seems to be typical of adult language acquisition.

The quantitative macro-study, presented in section 4, was complemented and supported by two more qualitatively oriented in-depth studies of specific lexical domains, belonging to different word class categories, i.e. function words (pronouns) and content words (nouns) respectively. Section 5 focused upon word formation processes, section 6 upon upon pronominal reference to persons. Again, effects of time (cycle), activity type, and source/target language were found in these two substudies.

In the word-formation study, we found a creative and innovative target language oriented use of compounding and circumscription as learner strategies for filling lexical gaps (including derivation). Evidence of source language influence was found as well in particular informant specific circumscriptions (N + prep + N) and left-oriented compounds.
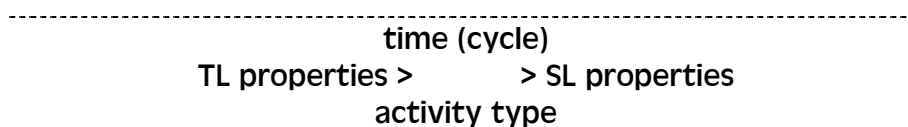
In the pronoun study, a greater relative share of second person pronouns was evidenced in conversations, in comparison to film retellings. Moreover, linguistic properties of the target pronoun system were shown to be more influential determiners of acquisition than differences between the source and target pronoun systems.

Our language learners' strategies for filling lexical gaps proved to be highly task dependent. Pronominal reference to entities resulted in an overextended use of word forms already available rather than in lexical innovations;

the overextended terms, as a rule, were the unmarked terms of the linguistic subsystem in question. However, nominal reference to entities resulted in an opposite pattern: lexical innovations in terms of both composition and circumscription could be evidenced in abundance.

7.2. In prospect

From the patterns discussed above, a rather complex picture of the acquisition process emerges, where different factors cooperate and interact to determine order of acquisition, preference of lexical items, and organization of learner strategies. Furthermore, it may well be the case that the relative weight of the determining factors is different for different linguistic domains and for different stages in a learner's acquisition career. However, there are tendencies in our results to suggest a 'default' hierarchy of main factors determining the linguistic performance of a second language learner, namely:

```
-------------------------------------------------------------------
                          time (cycle)
        TL properties >              > SL properties
                          activity type
-------------------------------------------------------------------
```

The default character of this hierarchy means that a search for explanations for the learner's linguistic performance should proceed from left to right rather than the other way around, unless there are clear indications to the contrary. This means, in effect, that, as a rule, source language properties become a potentially valuable explanatory factor only when the other factors in the hierarchy above have failed to apply.

The obvious importance of data derived from adult language learners rather than children is that cognitive development and language development are no longer indissolubly interwoven. Therefore, adult data form a crucial touchstone for claims about universal principles in language acquisition. Of course, universality has not yet been confirmed by data concerning children's acquisition of English as a first language. In fact, different kinds of demands can be made in the qualification of 'universality'. In our study on (pro)nominal reference to entities, many developmental characteristics were evidenced that are independent of a specific target language, source language, and age. A combination of these requirements obviously provides the strongest indicators for universal principles of language acquisition.

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THE USE OF VOCABULARY AND COLLOCATIONS IN THE WRITING OF PRIMARY SCHOOL STUDENTS IN SINGAPORE.

Mohsen Ghadessy
National University of Singapore

One of the important language skills developed during a student's "academic" life is writing. Thus comparing students' written work at two educational levels can indicate differences in the use of vocabulary, syntax and discourse patterns. The present study, which is part of a larger study, analyses data based on written samples produced by a number of Primary Three (PR3) and Primary Six (PR6) students in Singapore. By using the procedure of "the key word in context", first a number of frequent words and their collocations are analysed and then compared and contrasted in the two sets of data. Based on the findings, recommendations for improving the present instructional materials are then made.

1. Introduction

The teaching and learning of writing in one's first or second language has always had a place in the syllabuses of primary schools all over the world. The three R's have been the focus of attention for curriculum developers in these schools. However, if we were to rank these three subjects in terms of the attention paid to them by primary school teachers, writing would probably come last especially because nowadays students are not promoted to the next grade solely on the basis of what they can or cannot do. Saville-Troike's comments (1984) on the language competence of school children and their academic success are relevant here:

> The language skill which is most likely to develop this competence is **writing**, yet it is sadly last, not only in the traditional ESL litany of listening-speaking-reading-writing but also in the time and attention allotted to it in most ESL classes.
>
> (original emphasis, Ibid : 217)

Thus, inadequacies in speaking, listening, reading/comprehension and the four mathematics skills seem to be more disturbing to both teachers and parents than the inability to put a few words on paper.

But learning to write is in many ways a more demanding and distracting task than learning the other language skills. Also, as Martin and Rothery (1986) state, it is very easy for teachers to make the writing task unpleasant for their students.

Often teachers want their students to 'get the word right' from the beginning. Children who find handwriting, punctuation and spelling difficult are likely to miss the purpose of writing - to make meaning - and are also likely to dislike writing and to do as little as possible.

(Ibid : 241)

The present research set out to investigate both the language and discourse structure of two sets of pupils in order to establish a number of developments. We have always assumed that there are quantitative changes in language skills between students at different educational levels. In this paper we attempt to locate the differences in the use of vocabulary and collocations in the two sets of data.

2. Samples and population

The material used in this research is part of a larger sample (240) which was originally collected by Miss Jaya Laxmi for her Academic Exercise, i.e. "Analyzing the use of cohesive devices in the language of primary school students" in the Language BA Honours Course at the National University of Singapore in 1985. She gave the task to 6 groups of students (3 PR3 and 3 PR6 – Normal Stream). Only 4 groups, two of each, (a total of 176 samples) were used in the present study.

The subjects were given a set of four pictures (Hill, 1960) numbered 1 - 4, and were asked to write a story based on them. The tests were administered to the students in their own classes. They were told to write, in the space provided, as they would for any of their classroom composition writing, the only difference being that their answers would not be graded. Miss Laxmi explains how the task was carried out:

The students were requested to work on their own. I only helped then when they raised their hands to ask questions for clarification. These were mainly to do with spelling or naming of objects. I went to the students individually and answered them so as not to distract the other students or influence their choice of words.

(Laxmi : 12)

Although students were given about 45 minutes for the assignment, most finished in about 30 minutes. They were asked to proofread their texts before

submitting them and also keep within the limits provided. Only a few exceeded this limit.

3. Analysis of data

All the data was fed into the computer system at the National University of Singapore. Using the Oxford Concordance Programme, word frequencies, collocation patterns and a few grammatical structures for the two groups of students were then established. No claim is made here that the analysis is exhaustive. We only deal with some features which seem more prominent in the present data. The findings are as follows:

3.1 Vocabulary: types and tokens

A major difference between the two sets of data relates to the total number of words as tokens and the total number as types. The following table provides the statistics.

Table 1 : Types and Tokens

	Primary 6	Primary 6
Tokens	4782	8255
Types	432	759

PR3 students used 142 types with a frequency of 5 and above.
PR6 used 207 types with a frequency of 5 and above.

3.2 Vocabulary: content words and function words

Another major difference between the two sets of data relates to the use of content words, i.e. nouns, verbs, adjectives and adverbs and function words, i.e. articles, pronouns, prepositions, etc. PR6 students definitely used more content words as types. However, the majority of these words have a frequency of 4 and below. An interesting observation here is to compare the first 20 types in the two lists - content words are in capitals.

List 1 : The first 20 types in the two frequency lists PR3

	PR3	%	PR6	%
1.	the	12.05	the	9.39
2.	TREE	5.23	to	4.31
3.	BALL	5.19	TREE	4.13
4.	and	4.81	and	4.07
5.	to	3.39	BALL	3.23
6.	up	2.03	was	2.11
7.	one	1.92	up	1.84
8.	a	1.67	a	1.82
9.	TENNIS	1.51	PLAYING	1.39
11.	down	1.32	he	1.32
12.	PLAYING	1.28	but	1.20
13.	SUMEI	1.21	down	1.18
14.	they	1.19	they	1.18
15.	was	1.19	were	1.14
16.	SUDDENLY	1.15	MARY	1.03
17.	DAY	1.13	one	1.03
18.	BADMINTON	1.07	of	.98
19.	HIT	1.07	so	.94
20.	CLIMB	1.05	in	.91
		——		——

Total % 20 Tokens 50   45
(fractions rounded off)

An obvious conclusion here is that PR3 used content words more frequently than PR6. The reverse is true with function words. The following table provides the statistics.

Table 2 : Types and Tokens

	PR3	PR6
Content Words	20%	10%
Function Words	30%	35%
	—	—
Total	50%	45%

The words in List 1 can also be compared in a different way. A number of words are shared by the two groups, i.e. THE, TREE, A, etc. However, some words which are very frequent in one column do not appear in the other. The following percentages show the differences between PR3 and PR6.

List 2 :High frequency types within the first 20 words of PR3 that are used with lower frequency in PR6

Words	PR3%	PR6%
tennis	1.51	79
suddenly	1.15	48
day	1.13	53
badminton	1.07	73
hit	1.07	71
climb	1.05	71

List 3 :High frequency types within the first 20 words of PR6 that are used with lower frequency in PR3

Words	PR6%	PR3%
it	1.76	1.05
he	1.32	.65
but	1.20	1.00
were	1.14	.90
of	.98	.17
so	.94	.52
in	.91	.52

The word **SUMEI** with a frequency of 1.21 appeared only in PR3 materials. The word **MARY** with a frequency of 1.03 appeared only in PR6 materials.

The frequent use of pronouns like IT and HE and conjunctions like BUT and SO and especially the preposition OF in List 3 points to a more advanced use of collocations, grammatical patterns and cohesive devices on the part of PR6 students. Some of these will be discussed in the following sections.

3.3 Collocations

In this section we analyse the occurrence of two very frequent words, i.e. BALL and TREE together with a number of other items. For this analysis each word was considered in a mini-context which included a maximum of 5 words to the right and 5 to the left. Words beyond full-stops on either side were not included. The following are a few examples from PR3.

At last we got the ball back
Suddenly, the tennis ball flew up into a tree
tree and got the tennis ball down
Suddenly Sumei hited the ball on the tree

Now the little data above indicates that the probability of a combination such as THE BALL is very high. Both BALL and TREE function as head-nouns in nominal groups that are

very frequent in the data. The following tables give the statistics for the collocation of BALL and TREE with other words, i.e. within the 11 word context.

3.4 Premodification

Table 3 : Premodification of BALL

	PR3	%	PR6	%
the ball	209	84.3	248	93.0
the tennis ball	26	10.5	9	3.3
the badminton ball	5	2.0	1	0.5
a ball	2	1.0	3	1.0
others	6	2.2	6	2.2
	—	——	—	——
Total	248	100	267	100

Table 4 : Premodification of TREE

	PR3	%	PR6	%
the tree	200	80.0	272	80.5
a tree	28	11.0	32	9.5
a tall tree	10	4.0	9	3.0
the tall tree	6	2.5	5	1.5
others	6	2.5	20	5.5
	—	——	—	——
Total	250	100	338*	100

*TREE is used as a premodifier in 3 additional examples, e.g. TREE-TRUNK. The difference in the category of Others in Table 4 points to a major development in the structure of premodification as used by PR6 students. Although the maximum number of premodifiers did not exceed 2 in the case of PR3, PR6 showed more advanced structures such as the following.

a tall and shady tree
a tall, shady tree
a very tall tree
a huge and tall rain tree

PR6 students also used a variety of other words in the two-word pre-modifying structure, i.e. A SHADY TREE, A BIG TREE, A NEARBY TREE, etc. Also only PR6 used TREE as a premodifier with other nouns. Such examples, however, are very few, i.e. TREE TRUNK, TREE BRANCH. TREE CLIMBER.

3.5 Postmodification

Compared to premodification, examples of postmodification are very rare especially in PR3 data. The following are a few from PR6.

    the tree that was standing near them
    a tree near the place where
    the tree which John was sitting under
    the tall tree which Peter was sitting under
    the tall tree which was in the garden

4. Conclusion

It is the firm belief of this writer that the analysis of a few "key" vocabulary items in the two sets of data can illustrate some of the major differences between the two groups of students. Throughout the preceding sections the tables and lists have shown where these differences are. It is possible to select other key vocabulary items and proceed with a similar analysis. The assumptions here are that the same range of collocational and grammatical differences will again emerge.

5. Implications and applications

Saffiah (1984) lists a number of problems in the instructional content of writing in Primary Six and Secondary One schools in Singapore. These relate to (a) syllabus design, (b) textbooks, and (c) classroom teaching. These problems, as she states, are not totally new to research on the teaching of writing.

Some of the objectives of the syllabus for primary schools writing can be re-examined in the light of the findings of the present study. The linguistic differences show what has and has not been achieved at two stages in spite of the recommendations made by the syllabus designers. For example, the use of pre- and postmodification is a major development in the writings of these students. To what extent has the syllabus been responsible for this?

The analysis has shown that there is a major difference between the use of content and function words by the two major groups. In what way(s) is the syllabus responsible for this?

There has been a marked improvement in the quality of primary school textbooks in recent years. There is still a lot of scope for creativity and

imagination. Little use is made of the differences between the "genres" that students are familiar with. As Martin and Rothery (1986) suggest, genres such as "observation/comment, recount, and report" are not consistently presented and analysed.

Words are the building blocks of grammatical structures which in turn are the units out of which larger discourse elements are created in any text. Words assume significance when they are accompanied by other words (collocations) and these in turn gain functional importance when placed in different parts of a clause or sentence. It is natural that linguistic skills start with one-word utterances which become more complex as the child develops in maturity. The present paper has shown one way of investigating a little of what happens during this development toward full linguistic communicative competence.

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LEXICAL PHRASES, SPEECH ACTS AND TEACHING CONVERSATION

James R. Nattinger and Jeanette S. DeCarrico
Portland State University

1. The Lexical Phrase

In previous work, we have examined some syntagmatic aspects of the lexicon in language production and comprehension, and have found it useful to analyze in terms of lexical phrases (Nattinger 1980, 1986, 1988; DeCarrico and Nattinger 1988). Lexical phrases are multi-word lexical phenomena that exist somewhere between the traditional poles of lexicon and syntax. They are similar to lexicon in being treated as units, yet most of them consist of more than one word, and many of them can at the same time be derived from the regular rules of syntax, just like other sentences. These phrases are patterned sequences, usually consisting of a syntactic frame that contains slots for various fillers, and run the gamut from completely fixed, unvarying phrases to phrases that are highly variable. We established six basic categories of lexical phrases according to their functional and structural characteristics (Nattinger 1980):

(a) *Polywords*: short, fixed lexical phrases, whose meaning is not often an-alyzable by the regular rules of syntax. They can substitute for single words, so are often treated like regular vocabulary in language lessons: idioms ('kick the bucket'), euphemisms ('powder room'), slang ('better half), phrasal verbs, i.e., two- and three-part verbs ('put up,' 'put up with').

(b) *Phrasal constraints*: short, relatively fixed lexical phrases with slots that permit some variation, many being non-canonical forms ('a year ago,' 'by pure coincidence,' 'down with the king'), greetings ('how do you do'), partings ('see you later'), exclamations ('you can't be serious!'), insults ('you creep').

(c) *Deictic locutions*: short to medium length lexical phrases of low variability, consisting of phrases, clauses or entire utterances. They are essentially monitoring devices, whose purpose is (1) to direct the flow of conversation by marking attitudes, expectations, concessions, challenges, defenses, supports, retreats ('as far as I know,' 'don't you think,' 'if I were

you,' 'for that matter,' 'frankly,' 'I mean to say,' 'further to my letter of) or (2)   to exercise social control ('hey, wait a minute,' 'now look,' 'see here,' 'shut up,' 'and then what?').

(d) *Sentence builders*: lexical phrases up to sentence length, highly variable,   containing slots for parameters or arguments. These provide a skeleton for   the expression of the entire idea. They are often non-canonical and   discontinuous, and are used in a wide variety of social contexts ('not only X   but also Y,' 'if I X, then I Y,' 'the __er X, the __er Y').

(e) *Situational utterances*: lexical phrases which are usually complete sentences, amenable to the regular rules of syntax and highly dependent on the social context. They provide the framework for particular social interactions—greetings ('how are you today'), partings ('I'll see you next week'), politeness routines ('thanks very much for X'), questions ('could you tell me X')—and much of the language of social maintenance ('what's new,' 'cold enough for you,' 'I won't tell another living soul,' 'how have you been getting along with X').

(f) *Verbatim texts*: lexical phrases that may consist of entire texts of different length with extremely low variability. Used for quotation, allusion, or frequently, as in the case of institutionalized chunks, direct use. These are memorized sequences (numbers, the alphabet, the days of the week), aphorisms ('the public seldom forgives twice'), proverbs ('a rolling stone gathers no moss'), and all of those chunks that a speaker has found efficient to store as units. Some of these may be general units, used by everyone in the speech community, while others may be more idiosyncratic, phrases that an individual has stored because they have been found an efficient and pleasing way of getting an idea across.

As is apparent, all of these amount to much more than picturesque phrases of infrequent occurrence, and much more than isolated curiosities of phatic and 'incidental' language. Lexical phrases are in fact basic to language performance; they are pervasive because they seem to be characteristic of the 'chunking' processes we use to comprehend and to speak.

This sort of 'chunking' also characterizes speech production to a surprising degree. Becker, from his work in artificial intelligence on spoken language, feels that the frequency of lexical phrases in performed speech implies:

that the process of speaking is *Compositional*. We start with the information we wish to express or evoke, and we haul out of our phrasal lexicon some patterns that can provide the major elements of this expression. Then the problem is to stitch these phrases together into something roughly grammatical, to fill in the blanks with the particulars of the case at hand, to modify the phrases if need be, and if all else fails to generate phrases from scratch to smooth over the transitions and fill in any remaining conceptual holes (Becker 1975:72).

It is our ability to use lexical phrases, in other words, that helps us speak with fluency.

If lexical phrases characterize language acquisition and language performance to such an extent, they would seem to be an ideal unit for language teaching and for further exploring categories of linguistic theory. In this paper, we describe the sorts of lexical phrases that characterize conversational language. We then examine in detail a particular category of conversational lexical phrases called 'indirect speech acts,' and show how a lexical phrase approach provides satisfying solutions to certain problemes in their analysis. Next we examine the organization of lexical phrases in conversation, and we discuss the advantages and methods of a lexical phrase approach in the teaching of conversation.

2. Types of lexical phrases in conversation

What follows is an attempt to group lexical phrases in a way that will reflect the requirements of conversational language and at the same time be pedagogically useful. These groups are not traditional grammar categories by any means, nor are they purely semantic or pragmatic ones; instead they represent various categories of meaning and characteristics of discourse and conversational structure mat exist in many different types of conversational situations. They are somewhat similar in aim to Wilkins' notional-functional categories, where emphasis is on the lexicon needed to perform specific speech 'functions' for common situations (Wilkins 1976). We emphasize that ours are pedagogical rather than theoretical categories, devised as practical instruments for the classroom, and although we feel that they hew closely to current work in discourse analysis and speech act theory, it is not our purpose to make a theoretical claim for them here.

We call these groups 'Social Interactions,' 'Necessary Topics,' and 'Discourse Devices,' and list typical examples of each below. These examples do not represent an exhaustive list, of course, but they do suggest some of the kinds of lexical phrases that a new speaker will need to make use of to achieve a minimum level of expressive ability in the language. Students at more advanced levels, or those learning a language for special purposes, would require practice with additional categories and different lexical phrases. The lexical phrases that follow range from relatively invariant polywords, phrasal constraints and deictic locutions to highly variable sentence builders and situa-tional utterances.

Social Interactions

(interactional markers that describe social relations, consisting of (A) categories of conversational maintenance and (B) categories of functional meaning relating to conversational purpose.)

A. *Conversational Maintenance* (regularities of conversational interaction that describe how conversations begin, continue and end.)

Summoning:

 excuse/pardon me (sustained intonation), hey/hi/hello, (Name), how are you (doing)? lookit, I didn't catch/get your name, do you live around here? Hello, I'm + NAME. Good morning/afternoon/evening, (how are you?) What's up?[1]

Responding to summons:

 uh-huh? yes? hi/hello, (Name), how are you (doing)?/ what's going on? Hello, I'm + NAME, (I'm) fine, thanks, (and you)?

Nominating a topic:

 What's X? (By the way) Do you know/remember X? have you heard about X?[2]

Clarifying:

 (1) audience :huh? pardon me? what? what did you mean by X/when you said X?
 (2) speaker: What I mean/I'm trying to say is X, How shall I put it ? Let me repeat.[3]

Checking comprehension:

 O.K.? all right? (do you) understand (me)?

Shifting a topic:

 say, by the way, this is (a bit) off the subject/track, but X, where were we/was I ? oh that reminds me of X,   incidentally.[4]

Shifting turns:

 well, so O.K., look, listen,   excuse me, could I say something here?[5]

Closing:

 well, that's about it, I must be going, it's been nice talking to you, I've got to run/go/do X, I mustn't keep you any longer.[6]

Parting:

 goodbye, see you later, (well) so long (for now).

B. *Conversational Purpose* (types of Speech Acts, i.e. functions that describe the purposes for which conversations take place.)[7]

Expressing politeness:

thanks (very much), please, if you   don't mind.

Questioning:

(rising intonation), do you X? is/are there/it/they X?

Answering:

yes, (there/it/they is/are) (X), no, (there/it they is/are not) (X).

Requesting:

Modal Verb + Pro + V (i.e., Would you (mind) X?), may I X?[8]

Offering:

Modal Verb + Pro + V (i.e., May/Can I help (you)?) Would you like X?

Complying:

of course, sure (thing), I'd be happy/glad to.[9]

Refusing:

of course not,   no way, I'd rather you X,   I'm sorry but (I'm afraid/I think that) X.

Complimenting:

NP + be/look + (intensifier) + ADJ; I + (intensifier) + like/love + N

Asserting:

It is (a fact/the case that) X, I think/believe that X, it's said mat X, word has it that X, it seems X.   I read (somewhere) that,   there is/are/was/were X.[10]

Responding:

(1) acknowledging (simple reinforcers): yeah, uh huh, mmhm, (and then) what happened (next/then/after that)?

(2) accepting: yeah, I know, O.K., Oh, I see, no kidding.

(3) endorsing yes, that's so/correct/right, I absolutely/certainly/ completely agree, (that's) a (very) good/excellent point, *there* you go, that's great.

(4) disagreeing: yes, but (I think that) X, well (sustained intonation), I don't (really) agree (with you/X).[11]

Expressing gratitude:

thanks (very much/a lot) (for X), I (really) appreciate your thoughtful-ness/kindness/doing   X.

Expressing sympathy:

I'm (very) sorry about/to hear (about) X, (wow,) that's/how terrible/awful, what a shame/pity/terrible thing. [12]

Necessary Topics

(topics about which learners will be asked, or ones they will need to talk about frequently.)

Autobiography:

My name is X, I'm from X, I'm (a) X (years old).[13]

Language:

Do you speak X? How do you say/spell X? I don't speak X very well, I speak X (a little).

Quantity:

How much/big is X? (not) a great deal, lots of X.

Time:

When is X? What time X? for a long time/X years, X ago, since X, at/it's X o'clock, on Xday, the X before/after Y.

Location:

Where is X? What part of the X? across from X, next to X, to the right/left (of X), how far is X? X blocks (from Y).

Weather:

Is it going to X? It's (very) X (today)! I'm X.

Likes:

I like/enjoy X (a lot), I don't like/enjoy X (at all),   I'd like to X, X is lots of fun, (what) do you like to X?

Food:

I'd like (to have) X/to make a reservation (for X), the check, a table for X, serve breakfast/lunch/dinner.

Shopping:

> How much is X? I want to buy/see X, it (doesn't) fit(s), (not) too expensive, a (really) good/bad buy/bargain, X cost(s) (me/ you/them)__dollars.

Discourse Devices

(types of lexical phrases that connect the meaning and structure of the discourse; these are mostly transactional devices, but also deal with interactional markers of personal attitude.)

Logical Connectors:

> thus, as a result (of X), nevertheless, because (of) **X,** in spite of X.

Temporal Connectors:

> the day/week/month/year before/after X, and then, after X then/the next is Y.

Spatial Connectors:

> around here, over there, at/on the comer.

Fluency Devices:

> you know. It seems (to me) that X, I think that X, by and large, at any rate, if you see what I mean, and so on, so to speak, as a matter of fact.[14]

Exemplifiers:

> in other words, it's like X, for example, to give you an example.

Relators:

> the (other) thing X is Y, X has (a lot)/doesn't have (much) to do with Y.

Qualifiers:

> it depends on X, the catch is, it's only in X that Y.

Evaluators:

> as far as I know/can tell, frankly, there's no doubt that X, (I'm (not) absolutely/pretty sure/positive/certain but) I think that **X,** I guess, at least, at all.[15]

Summarizers:

> to make a long story short, my point (here) is that **X, O.K.** (level intonation).

Pronouns:
     this/that/these/those (X), some/no/any one.

Conjunctions/ Subordinators:
     and (then/so), but, which is/are, one(s) that, not only X but also Y.

3. Nonconventional indirect speech acts

     A great many indirect speech acts take the form of lexical phrases. Given that one of the most puzzling questions posed within speech act theory relates to the form that indirect speech acts often take, we believe that a lexical phrase approach provides a new way of looking for satisfactory answers to these questions. Searle (1975) was well aware of the problems that variabilities in form posed for his theory. He discusses first the type of form found in the reply by B, below, to the proposal made by A.

     A: Let's go to the movies tonight.
     B: I have to study for an exam.

B's reply would normally constitute a rejection of the proposal to go to the movies, but not in virtue of its literal meaning. The illocutionary force of the indirect speech act resides in B's secondary act of making a statement to the effect that he has to study for an exam. However, statements of this type do not normally convey rejections. Thus, Searle notes, 'I have to tie my shoes' or 'I have to eat popcorn tonight' would not in a normal context be a rejection of the proposal to go to the movies tonight. For this reason it is necessary to posit a series of steps that Speaker A would follow, at least unconsciously, in order to work out the illocutionary force of B's reply: in response to A's proposal B stated that he had to study for an exam; A assumes that B is cooperating in the conversation and that therefore his remark was intended to be relevant; a relevant response must be one of acceptance, rejection, counterproposal, etc.; but his literal utterance was not one of these; therefore he probably means more than he says, and his primary illocutionary point must differ from his literal one.

4. Conventional indirect speech acts

     This type of speech act form, however, contrasts with the type of form that a great many indirect speech acts take. Most of Searle's examples are indirect requests and indirect offers, and the forms they take are often quite conventional. One of his well known examples is the request form below.

     Could you pass the salt?

Variations on this form are 'can you pass the salt?', 'can/could you reach the salt?', 'can/could you hand me the salt?', and so on. Other common forms he cites for indirect requests and offers include 'I would like you to go now', 'I want you to do this for me', 'I'd rather you didn't do that', 'would you be willing to write a letter of recommendation for me?', 'would you mind not making so much noise', 'do you want to hand me that hammer over there?', 'can I help you?', 'can I do that for you?', 'could I be of assistance?', 'would you like some help?, 'wouldn't you like me to bring some more next time I come?'

As opposed to statements like B's response, 'I have to study for an exam', sentences like those above arc "standardly" or "conventionally" used in the performance of indirect directives. As conventionalized forms they are instantly recognized as such, and no series of steps need be posited for the hearer to be able to work out the intended illocutionary force of the utterance. The biggest problem with his analysis, Searle feels, is that

> if, as I have been arguing, the mechanisms by which indirect speech acts are meant and understood are perfectly general-having to do with the theory of speech acts, the principles of cooperative conversation, and shared background information— and not tied to any particular syntactical form, then why is it that some syntactical forms work better than others. Why can I ask you to do something by saying 'can you hand me that book on the top shelf?' but not, or not very easily, by saying 'is it the case that you at present have the ability to hand me that book on the top shelf?'...even within such pairs as...'can you do A?', 'are you able to do A?', there is clearly a difference in indirect illocutionary act potential. (Searle 1975: 75)

The answer given is that certain forms tend to become conventionally established as the standard idiomatic forms for indirect speech acts; that politeness is the most prominent motivation for indirectness, and certain forms naturally tend to become entrenched as conventional devices for making polite indirect requests, offers, and so on.

These reasons provide a partial answer, but they do not entirely explain how it is, nor why it is that certain forms, and not others, become "entrenched" as the conventional devices of indirect speech acts. If viewed as lexical phrases, however, a more complete explanation can be given for why certain forms become entrenched, and the means by which their forms come to be conventionalized.

For one thing, a certain set of forms may appear to be the entrenched ones for expressing a given indirect speech act when in fact this set may consist of only a very limited number of basic lexical phrase frames, with various lexical fillers in the slots accounting for several variations of the frames. The flexibility allowed within a particular frame may well account for why that frame, rather than another, has come to be one of the favored, conventional

ones for a given indirect speech act. In other words, the forms and functions of lexical phrases can provide considerable insights in attempting to answer Searle's puzzle of "why some syntactical forms work better than others."

Searle's examples of requests and offers present a particularly clear illustration of this point. Among the forms that function as requests, for instance, he lists the questions,

Could you pass the salt?
Can you pass the salt?
Can you reach the salt?
Are you able to reach the book on the top shelf?
Will you quit making that awful racket?

Seen from a lexical phrase perspective, however, these five sentences have only one (basic) form, namely, the lexical phrase frame,
Modal + you + V

with the variations accounted for by the different fillers used in the modal and verb slots. Other question forms listed for requests include,

Would you mind not making so much noise?
Would you kindly get off my foot?
Would you be willing to write a letter of recommendation for me?

But these sentences, too, are simply variations of this same basic lexical phrase frame. These variations show that the frame is somewhat more flexible than we have indicated so far. The basic frame, 'modal + you + V can be modified to allow for versions like these.
Modal + you (mind/kindly/be willing to) V?

Other variations of this same frame can also be seen in the list Searle gives.

Have you got change for a dollar?
Do you want to hand me that hammer?
Aren't you going to finish your cereal?

The only differences illustrated by these examples are that auxiliaries other than modals can also occur in initial position, and negation is possible. Again, a slight modification of the lexical phrase frame allows for this greater flexibility in slot and filler options. It also serves to reveal the fundamental similarities in the form of these eleven requests.

Aux (not) + you (mind/kindly/be willing to) + V?

Requests can also be made by uttering a certain type of statement form. Searle lists a number of these statement forms, but again they can be reduced to two or three basic lexical phrase frames. Among those he lists are,

I would like you to go now.
I want you to do this for me.
I would rather you didn't do that.

The relationship between these request statements is revealed in the frame,
I (want   ) you (to) (not) V (for me).
(would like/rather)

Other variations related to this frame are,
I hope/wish you will/would (do) X (for me).

The examples Searle gives for offers fit into similar patterns, as for example,
Can I help you?
Can I do that for you?
Could I be of assistance?

which can be reduced to the lexical phrase frame,

Modal + I + V (for you)?

As Searle points out, one basic difference between the question forms for requests and the question forms for offers is that the former are 'hearer based' (modal/want + you) whereas the latter are 'speaker based' (modal + I).

These examples for requests and offers illustrate that the basic, relatively simple syntactic frames are nevertheless quite flexible in that the slots and fillers allow for a variety of actual utterances. Thus it is the lexical phrase frames, we believe, that become the conventionalized forms for a given function. The use of a limited number of prefabricated frames for these functions helps to explain Searle's puzzle as to why it is that "some syntactical forms work better than others" as indirect speech acts. Just as other lexical phrases become specialized, or "entrenched" for particular functions, so do those for indirect speech act functions such as requests and offers. Very likely, me ones that become entrenched for these common, frequently occurring functions are those with simple syntactic frames that, while easy to learn and store initially as lexical phrase chunks, still allow for considerable slot/filler variation for a particular utterance.

One final point worth mentioning is Searle's cautionary note that indirect speech acts are not universal. The reason is that "in indirect speech acts the speaker communicates to the hearer more than he actually says by way of relying on their mutually shared background information, both linguistic and nonlinguistic" (pp. 61-62). The same may be said for lexical phrases in general, because although the processes involved   in   storing   and   retrieving   lexical

phrases are thought to be universal, the phrases themselves frequently differ from one language to another. Put another way, the functions of lexical phrases occur in all languages, but the forms they take are often language specific.

On this point, however, it should be noted that Brown and Levinson (1978, 1989) argue not only that "[strategies] of making indirect speech acts appear to be universal" (1989, p. 136), but also suggest that, based on comparisons of English, Tamil, and Tzeltal, the linguistics forms are also often parallel. However, various other researchers have shown that it is misleading to assume that the forms of indirect speech acts are parallel across languages. Schmidt and Richards (1980), for instance, maintain that "even if speech act strategies are to a certain extent universal...learners of new languages still need to learn...the particular conventionalized forms in the new language" (p. 140). A particularly clear illustration of one reason for this is given in Nelson (1984). Comparing request forms in English and Japanese, she demonstrates that while the question form below,

Ashita made matemasu ka?
tomorrow until can-wait Q

'Can you wait until tomorrow?'

is a polite request in Japanese as well as in English, the negative question form,

Ashita made matemasen ka?
tomorrow until can-wait-NEG Q

'Can't you wait until tomorrow?'

is even more polite in Japanese, In English, however, it is not polite at all. At best it is impolite, and in some contexts would be downright rude. (On the differences in illocutionary force of negative question forms, see also Leech 1983.) Thomas (1983) discusses various other types of examples in which the lingusitic forms are language-specific. In illustrating the reasons for cross-cultural pragmatic failure of non-native speakers, she points out, for instance, that while 'can you X?' is a highly conventionalized politeness form in English, likely to be interpreted by native speakers as a request to do X, rather than a question as to one's ability to do X, in other languages, such as French and Russian, just the opposite is true.

The difference in forms with respect to indirect speech acts is also what Qin (1983) had in mind when he reported that one of his Chinese students was puzzled at being taught that in English a question like 'could you pass the salt' functions as a request to pass the salt to the speaker. The student's response was that the practice dialogue illustrating this request was not logically composed because, since the speaker asks a general question, the hearer should be-

gin his answer with 'yes' or 'no'. Qin's point is that teaching English as a foreign language will never be effective unless it includes the teaching of such culture-specific forms. We would like to emphasize that the importance of such teaching extends not only to indirect speech acts but to other lexical phrase forms and functions as well.

5. The organization of lexical phrases in conversation

Social Interactions and Discourse Devices provide patterns for the framework of the discourse, and Necessary Topics provide them for the subject of discussion. Most conversational encounters, if they are not of the briefest, phatic sort, are composed of a patchwork of patterns from all three of these categories. For example, one of the most basic interactions at the beginning of a conversation is to get the attention of the person one is talking to. When that person responds to the summons, the next step is to get the partner to attend to the topic of discourse; one then begins to offer information about the selected topic. In this way the participants cooperate to build a conversation. After the purpose of the conversation has been satisfied, the participants close the dialogue, and part.

A brief but typical conversation (with labeled lexical phrases) might be:

A: Excuse me? (sustained intonation) (summons:SI)

B: Yes? (response: SI)

A: the Saturday Market? (topic nomination:SI)

B: uh huh? (acknowledgment:SI)

A: Where is the Saturday Market (request:SI) (location:NT), please? (politeness: SI)

B: I'm not sure but I think (assertion:SI) (evaluator:DD) (fluency de-vice:DD) it's three blocks to the right next to the Burnside Bridge (location:NT)

A: O.K. (acceptance:SI) Well, (closing:SI) thanks very much. (politeness :SI)

B: O.K. (acknowledged:SI) So long. (parting:SI)

Person A initiates the conversation by summoning the attention of B with the lexical phrase 'excuse me,' spoken with sustained intonation. B responds to the summons, and A then nominates a topic, 'the Saturday Market.' B acknowledges, and A gets to the main point, which is to ask for the location of the market. B asserts an answer which also functions as an evaluator and fluency device, and which precedes three short lexical phrases that describe location, 'three blocks,' 'to the right,' and 'next to the Burnside Bridge.' A indicates the answer is understood and moves to close. B acknowledges, and responds with a phrase for parting.

Part of a more involved conversation might go something like this:

A: Hey, Sally. What's up? (summons :SI)

B: Hi, Bill. How are you doing? (response:SI)

A: Say (topic shift:SI), did you hear about my new car? (topic nomination:SI)

B: No kidding (response:SI), a new car? (clarification :SI)

A: Yeah (response:SI). I bought an old Volvo (shopping:NT) the day before yesterday, (time: NT)

B: Hey, that's great (response:SI). How much did it cost you? (shopping:NT)

A: It seems to me that it was a really good buy (assertion:SI) (evaluator:DD) (fluency device:DD) (shopping:NT) and (conjunction: DD) there isn't anything wrong with it (assertion:SI)—as far as I can tell (evaluator:DD), at any rate (fluency device:DD). . .

A's remark beginning with 'it seems to me that X' is typical of the complex utterances that often occur after a topic has been established and information is being presented about it. Evaluators, fluency devices and other discourse devices begin to play a large part in the evolving conversation. Moreover, the lexical phrases themselves begin to serve several purposes simultaneously.16 For example, the beginning of A's utterance, 'it seems to me that X,' bears a multiple function: it marks a social interaction, for it is a routinized way of making an assertion, and at the same time it serves as a couple of discourse devices—as an 'evaluator,' because it marks the assertion as personal opinion, and as a 'fluency device,' because it is a bigger piece stitched into the discourse than the similar phrase, 'it was X.' Being a bigger chunk, it gives the speaker more time to plan for the next routine, and thus promotes fluency.

In purpose, it is very similar to the assertion-evaluator that participant B used in the previous conversation. 'I'm not sure but I think' is one of the expanded forms of the lexical phrase 'I'm (not) (absolutely/pretty)sure/positive /certain (but I think) (that) X,' and certainly allows B more time to gather thoughts than would a minimal form of the same lexical phrase, such as 'I think X,' or simply the bald assertion, 'it is X.'

It would be unreasonable for a teacher to condemn such fluency devices as linguistic crutches or as verbose, empty filler, for they serve an extremely important function, especially at the beginning and intermediate stages of language learning, of promoting fluency and of thus motivating learning.

6. Advantages of teaching lexical phrases

Lexical phrases offer many advantages for teaching conversation. As was suggested previously, they allow for expressions that learners are yet unable to construct creatively, simply because they are stored and retrieved as

whole chunks, a fact which should ease frustration and, at the same time, promote motivation and fluency. These phrases also ought to prove highly memorable, since they are embedded in socially appropriate situations. More importantly yet, they provide an efficient means of interacting with other speakers about self-selected topics, which is another characteristic that should certainly engender social motivation for learning the language, as well as guaranteeing feedback to help speakers test how accurately they have constructed their responses. With respect to indirect speech act phrases, they further provide a means for using politeness devices, and for avoiding the possible misunderstanding of the conversational partner's intent.

Lexical phrases may also provide the raw material itself for language acquisition. Anyone who learns a language in a relatively natural environment, adults as well as children, seem to pass through a stage in which they string memorized chunks of speech together in certain frequent and predictable social situations. Later, on analogy with many similar phrases, they break these chunks down into sentence frames that contain slots for various fillers. Some linguists feel that the process of segmentation continues until learners have worked their way to individual lexical items and the specific, competence-based rules for their combination. Now whether the actual grammatical rules are learned this way is still a controversial matter, and, if one analyzes them solely as structures, then there would be no reason to suppose that lexical phrases would necessarily lead to such grammar rules. But if we see these phrases also as formulaic units of social interaction, then their centrality in language acquisition becomes more likely. Many linguists now believe that social interactions come before the syntactic structures and provide the basis for them.17 Infants learn what language is used for before they learn how to speak it, for example; children learn the conventions that make utterances into speech acts before they learn how to frame the utterances as grammatical sentences. Hatch makes the general observation that:

It [has been] assumed that one first learns how to manipulate structures, that one gradually builds up a repertoire of structures and then, somehow, learns how to put the structures to use in discourse. We would like to consider the possibility that just the reverse happens. One learns how to do conversation, one learns how to interact verbally, and out of this interaction syntactic structures are developed (1978:404).

The structures one first uses to 'do conversation' are invariable lexical phrases, manipulated as pieces of function and meaning in predictable social interactions.

Scollon (1979) suggests more specifically how the process might work. In the following conversation:

Child: That dog.
Adult: What about the dog?
Child: big.
Adult: Oh, the dog is big.

the adult responds to the child's selection of 'dog' as topic by asking for a comment about it. The child provides the information 'big,' and the adult then models how these two semantically-linked elements of topic and comment are structurally-linked as subject and predicate in an English sentence. Scollon argues that these semantically-linked constructions provide the basis for the longer syntactically-linked structures that develop later. Second language learners seem to make use of the same strategy, even though they have already mastered a syntactic system. One might suppose that these learners would immediately begin to make basic syntactic links in accordance with sentence structures in their native language, yet research shows that most initial structures conform to the semantically linked ones (Hatch 1978). Second language learners, like first language learners, apparently learn the rules of conversational interaction before they learn the rules of sentence structure.

There are many motives for teaching with lexical phrases. Even if we do not yield to the argument that conversation precedes syntax, there remain all the other reasons why socially motivated lexical phrases are an integral part of language acquisition. How might they then be exploited in the classroom?

7. Teaching conversation with lexical phrases

Since a common characteristic of acquiring language performance is the progression from routine to pattern to creative language use, one method of teaching lexical phrases would be to get students to use them the same way;
that is, by starting with a few basic fixed routines, which they then would analyze as smaller, increasingly variable patterns as they were exposed to more varied phrases. There is nothing wrong with memorizing some essential chunks, especially at the beginning stages of language learning.

More specifically, such a method might be put to work as follows. Pattern practice drills could first provide a way of gaining fluency with certain basic fixed routines (Peters 1983). The challenge for the teacher would be to use such drills to allow confidence and fluency, yet not overdo them to the point that they became mindless exercise, as has often been the unfortunate result in strict audiolingualism. The next step would be to introduce the students to controlled variation in these basic phrases with the help of simple substitution drills, which would demonstrate that the chunks learned previously were not invariable routines but were instead patterns with open slots. In general, this suggests that one should teach lexical phrases that contain several slots instead of those phrases which are relatively invariant—sentence builders and situational utterances rather than polywords or phrasal constraints. For example, in teaching formulas for sympathy, one would find the lexical phrase, 'I'm (very) sorry (to hear (about) that),' more useful man the rather inflexible, 'I'd like to express my sympathy (about X).' The range of variation would then be increased as students became more adept at using the phrases, allowing them to analyze the patterns further. The goal would not be

to have students analyze just those chunks introduced in the lessons, of course, but to have them learn to segment and construct new patterns of their own on analogy with the kind of analysis they do in the classroom. It is when students learn this that creative control of the new language begins.

Of course, conversations are social events rather than grammar exercises, so there must be more than structural analysis. We not only have to focus teaching methods on how learners go about learning language, we need also focus on why they learn it; and as we have seen, people learn language as a part of a social interaction in which they have something they want to say.

To include this affective dimension, we must design beginning lessons to treat a single, predictable situation centered on some needed communicative function, and offer a few simple but variable lexical phrases for dealing with that situation. Later materials would introduce the students to sets of more complex phrases that could also be used to express the same function, a kind of 'theme and variation' (Peters 1983:113), whose range of variation would broaden as learners became more skilled. These phrases would thus be presented in a cyclical rather than linear fashion, much as Wilkins suggests for his notional-functional syllabus (Wilkins 1976:59), so that students would return to the same functions throughout the course and learn to express them in an increasingly sophisticated manner. To use a previous example: in teaching the function of expressing sympathy, we would begin with a lexical phrase in its minimally expanded form, 'I'm sorry,' and then in later lessons cycle back to more expanded versions of this phrase, such as 'I'm very sorry to hear that X.'

Many Communicative Language Teaching activities would provide a framework for introducing these phrases, especially those exercises that have students consciously plan strategies for interacting with others, like DiPietro describes (1986). For such interaction, students very early on will need to practice phrases for conversational maintenance, particularly those for nominating and clarifying topics; speech acts, like expressing politeness, requesting, questioning and responding; and they will need to connect utterances and fill pauses with discourse devices to give their conversations coherence, to give themselves a feeling of fluency, and to let their partners know they are trying and have not given up.

Keller describes activities for second language learners that attempt to deal systematically with turn taking, topic nomination, closings, openings, and a few other categories of conversational interaction in a series called GAMBITS (Keller 1976-79). In one such activity, students practice interrupting their partners. Students have a list of phrases described as 'interrupters,' (which we include as 'turn shifters')—'excuse me for interrupting, but,' 'I might add here,' 'may I ask a question,' and so on—and a list of phrases that direct a return to the topic ('topic shifters,' in our terms)— 'anyway,' 'to return to,' 'where was I going,' and so on. Participant A begins by using one of the interrupter phrases, and B answers, trying to get back to the topic as quickly as possible by using one of the topic shifters.

One of the best frameworks for teaching use of lexical phrases would be through exchange structures, which describe expected sets of successive utterances in conversation.18 A summons is usually followed by a response, for example, a request by a compliance or a refusal. The exchange structures that would be immediately useful for second language learners to practice would be greeting—greeting (a subcategory of summons—response); nominating a topic—clarifying-checking comprehension; shifting turns—shifting topics (much as the above Gambit activity describes); closing—parting; request-comply; request—refuse; asserting—acknowledging, accepting, endorsing; asserting—disagreeing; and question-answer .These exchanges should be practiced with necessary topics, those that students will most frequently encounter in their current linguistic lives, and with the appropriate linking devices of discourse, to give their conversations coherence and fluency.

Notes

1. Many summons begin with 'pseudo-apologies' (Wardhaugh 1985:124), expressions such as 'excuse me,' 'sorry to bother you,' 'I didn't mean to interrupt but.' When the person to whom the remark is addressed acknowledges with a 'reprieve'-'(oh), that's o.k./all right'- the 'intruder' then gets to the topic.

There are many other ways to summon attention: requests for a certain amount of time ('got a minute/second?') or object ('got a match/light?'); phrases for role-marked situations ('may I take your order?' 'can I help you?' 'and how are we doing today?'); and self-initiated introductions ('Hello, I'm + Name').

2. After B responds to A's summons, A does not often go directly into the topic without first framing what will follow by 'topic priming.' If a narrative is to be the topic, A may preface it with a lexical phrase like 'I want to tell you something/about X,' 'did I tell you (about X)?'; if a joke, the phrases 'have you heard the one about X?' 'stop me if you've heard this one'; and if simply personal, then lexical phrases of asserting are used, 'personally, I think (that) X,' 'if you want my opinion (about X).'

Topics will be more difficult for adults to recognize than for children. Children's lives are mostly constrained to the here and now, whereas adults must recognize topics that are much more varied and unpredictable. At the same time however, adults have learned strategies that children do not seem to have learned to the same degree for predicting what the entire discourse or the topic might be like.

3. The easiest (and probably most frequent) way to ask for clarification is to say 'huh?' Another is to echo the part that has not been understood with rising intonation. Most adult learners have many different strategies to help clarify

the topic; that is, they have learned to ask for repetitions or clarification in a number of ways.

4. Topic shift is no easy matter, for it almost always occurs when all participants think that the current topic has run its course. New topics are usually linked to previous ones with such phrases as 'that reminds me of the time/X,' 'now that you mention it,' 'speaking of that,' or phrases that attempt to return to a previously nominated topic, 'to get back to what I was saying,' 'what I was trying to say was (that) (X).' When a new topic is not related to previous ones, it is introduced by phrases which explicitly mark that fact: 'this is really off the subject but X,' etc.

Topic shift may also signal dramatic illocutionary effects, as for example in B's refusal to answer A's question: A: how old are you? B: I'm a very wise person (Richards 1980).

5. This is a general category that includes interruptions and other such misplacement markers. To repel interruptions, participants usually resort to compounding and subordination to produce chained expressions, or to filling pauses with fluency devices so as not to allow a turn-over. See footnote 15 for further discussion.

6. Closing must be a cooperative activity, and is one in which we offer some form of compliment ('it's been great/wonderful/fun talking to/seeing/running into you') or we try to leave the impression that we really want to carry on, but some external condition is forcing our hand ('well, (I've got to get) back to work,' 'I must/I've got to be going,' '(Guess) I'd better let you go, (because I know you're busy).' (Wardhaugh 1985:156-7)

7. 'Speech Acts' here are defined more narrowly than they usually are in the literature since they do not include the interactional markers of conversational maintenance.

8. Ervin-Tripp (1976) argues that non-literal directives-which are the unmarked form for requests between adults-have the routinized sentence frame of Modal Verb + you + Feasible Action, such as 'would/could/can you do X'), and therefore do not have to be interpreted by inference on every occasion of utterance.

There arc three basic kinds of requests in English: (1) questions, such as Ervin-Tripps, and others like 'do you have the time?), (2) statements, 'I wonder how we are doing for time/and (3) imperatives, 'tell me the time.' Direct imperatives are usually avoided for the reason that the more one's request impinges on someone else, the more delicate and less bald it must be (Tannen 1986)

9. The linguistic forms used for expressing compliments in U.S. middle-class adult society appear to be extremely limited. Over half of nearly 700 com-

pliments collected in a recent study fit the two sentence frames above; and if one adds a third frame, 'Pronoun + be + (intensifier) (a) Adjective + Noun Phrase' ('that's really a great tie'), then 85% of the data can be accounted for! (Manes and Wolfson 1981).

Teachers must prepare for a great deal of intercultural diversity in this speech act however, in the forms of compliments, in their frequency and in appropriate responses to them.

10. In general conversation, assertions are usually blunted somewhat so that there remains room for maneuver and for saving face. Instead of using straightforward assertion frames like 'it is (a fact/the case that) X,' 'X is right/wrong,' we usually use hedged forms. Personal point of view prefaces, for example, ('personally, I think X,' 'in my opinion') allow one to assert information without making one responsible for the complete accuracy of it. More indirect forms ('it may be that X,' 'I've heard (tell/it said) that X') also succeed in distancing the speaker from full responsibility for the assertion. Since these phrases often indicate the degree of commitment speakers have to their assertions, ('as far as I can tell,' 'frankly,' 'to be perfectly honest') they serve at the same time as evaluators, one of the discourse devices. See footnote 16.

11. Although feelings may run high, strong disagreement is not characteristic of conversation. Phrases that indicate mild disagreement ('I wouldn't say that exactly,' 'yes, but (I think that) X") are much more frequent than those that suggest clear dissent ('you're/that's wrong/ridiculous.')

12. Other speech acts, with a few of their characteristic lexical phrases, that a teacher may think valuable to practice are:
Complaining: 'Sony, but there's a problem,' 'I hate to mention this, but X.'
Excusing: 'I didn't know/realize that X,' 'it slipped my mind.'
Denying: 'it isn't my fault,' 'I'm not to blame for X.'
Apologizing: 'I'm (really/very) sorry about X,' 'I won't let it happen again,' 'I offer my (sincerest) apologies.'

13. Learners need to be prepared to talk about a small number of topics they know they will be asked about. The most frequent questions will have to do with who they are, what they do and where they are from.

14. Essentially, these phrases buy time to help one gather one's thoughts. They not only promote fluency, but also indicate to the hearer that one has not given up, thus serving to rebuff interruptions (turn shifts).

15. Evaluators are closely tied to asserting, for they are phrases that indicate how dogmatically one views the world. Most people avoid certain evaluators like 'X is (absolutely) certain/definite' because these make them seem inflexible. They choose instead phrases which allow them and their audience more

room for maneuver ('sort/kind of,' 'looks like,' 'X may/could be that Y.') Many such 'evasive' phrases ('in some ways,' 'perhaps,' 'interesting,' 'it depends,' 'that's a difficult question') are ways of expressing politeness at the same time.

16. It is not unusual that a single lexical phrase should have multiple functions. Speech Act theory has also had to allow for the fact that many categories cannot be defined as non-arbitrary and discrete types.

17. Some linguists, who have also studied language acquisition, feel that such a thing is unlikely, however. "It is difficult to demonstrate," Hakuta states,
"how the specific rules of grammar might be derived from conversational analysis" (Hakuta 1986:129).

18. We use 'exchange structure' to indicate a minimal interactive unit of discourse, and as such it emcompasses similar terms like 'adjacency pairs' (Sacks 1972), 'interchange' (Goffman 1971) and 'exchange' (Sinclair and Coulthard 1975).

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