Modelling and Assessing Vocabulary Knowledge

Edited by

Helmut Daller
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CAMBRIDGE
Applied Linguistics

Series Editors: Michael H. Long and Jack C. Richards

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CAMBRIDGE
UNIVERSITY PRESS

CAMBRIDGE UNIVERSITY PRESS
Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore, São Paulo

Cambridge University Press
The Edinburgh Building, Cambridge CB2 8RU, UK

www.cambridge.org
Information on this title: www.cambridge.org/9780521703277

First published 2007

Printed in the United Kingdom at the University Press, Cambridge

A catalogue record for this book is available from the British Library

Library of Congress Cataloging-in-Publication Data

Modelling and assessing vocabulary knowledge / edited by Helmut Daller,
James Milton, and Jeanine Treffers-Daller.
p. cm. – (Cambridge applied linguistics series)
Includes bibliographical references and index.
ISBN 978-0-521-70327-7 (pbk.) – ISBN 978-0-521-87851-7 (hardback)
1. Language and languages–Ability testing. 2. Vocabulary–Ability testing.
I. Daller, Helmut, 1957– II. Milton, James, 1955–
III. Treffers-Daller, Jeanine, 1959– IV. Title. V. Series.
P53.9.M63 2007
418.0076–dc22 2007020745

ISBN 978-0-521-87851-7 hardback
ISBN 978-0-521-70327-7 paperback

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Abbreviations

AWL	Academic Word List
BNC	British National Corpus
CHAT	Codes for the Human Analysis of Transcripts
CHILDES	Child Language Data Exchange System
CLAN	Computerised Language Analysis Program
EVST	Eurocentre's Vocabulary Size Tests
LFP	Lexical Frequency Profile
SALT	Systematic Analysis of Language Transcripts
TTR	Type–Token Ratio
X-Lex	X-Lex the Swansea Placement Test

Acknowledgements

We would like to acknowledge financial support given by the British Association for Applied Linguistics (BAAL) and the Linguistics Association of Great Britain (LAGB) for the organisation of a BAAL/CUP workshop (with the Universities of the West of England, Reading and Swansea) on 8–9 January 2004.

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for Figure 1 on p. 48: 'Vocabulary knowledge of a typical learner', taken from *EFL Vocabulary Tests* by P. Meara © (1992). Used by permission of University College, Swansea.

Table 7 on p. 99: Means scores for 20 adult L2-informants (nine-month intervals)' taken from 'Measuring Lexical Richness and Variety in Second Language Use', *Polyglot* 8, 116, written by Broeder, Extra and Van Hout.

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Foreword

Modelling and assessing vocabulary knowledge are two sides of the same coin. Progress in modelling will help to develop more refined ways of assessing vocabulary knowledge, and empirical data from assessments will feed into the development of models for this aspect of language proficiency. The focus of this book is on both, modelling and assessing. The initiative for this book came after a BAAL/CUP workshop in January 2004 at the University of the West of England, Bristol. Researchers from various backgrounds were discussing their way of approaching vocabulary knowledge in the development and evaluation of measures, or in the discussion of models. After an intensive discussion over two days we decided to bring our views on this topic together by replying to the keynote chapter of Paul Nation, who outlined the threats to the validity of various measures of lexical knowledge. Chapter 1 of this book gives an overview of these threats; the remainder of the book is dedicated to the approaches to overcome these methodological problems. Overall, most researchers in the field stress that a single 'one-size-fits-all' measure or a 'Holy Grail' does not exist for the measurement of vocabulary knowledge. Instead many researchers stress the importance of multiple measures to give a valid picture of the lexical richness of a person. A broad variety of these measures are discussed in this book.

Series Editors' Preface

This book explores approaches to the measurement of vocabulary knowledge and vocabulary development in second and foreign language learners. Vocabulary plays an important role in the lives of all language users, since it is one of the major predictors of school performance, and successful learning and use of new vocabulary is also key to membership of many social and professional roles. The measurement of vocabulary knowledge in second language learners is of interest not only to language teachers, who are often required to make assessments of development of their learners' language proficiency, but also to researchers and test developers who seek to develop valid and reliable measures of second language knowledge and use. While there is a considerable literature of many aspects of language testing, the assessment of lexical knowledge has received relatively little attention until recently, despite the fact that vocabulary can be viewed as the core component of all the language skills. The papers in this book show how scholars in a number of different countries are addressing fundamental questions related to vocabulary modelling and measurement.

Modelling and Assessing Vocabulary provides an overview of issues involved in vocabulary measurement in second and foreign language learning. The central question which the contributors to the book explore is, how can one assess the extent and richness of a person's vocabulary knowledge and use? Lexical competence is difficult to assess with a single measure since vocabulary knowledge is multi-faceted. Multiple measures are needed across a variety of tasks and settings in order to provide an adequate picture of the extent of a learner's vocabulary. In this book a number of approaches to the measurement of the L2 lexicon are illustrated. Many standard vocabulary tests are shown to reflect a partial view of the nature of lexical competence, and the papers demonstrate how researchers are attempting to develop more sophisticated and representative measures of lexical competence. The contributors show that among the factors affecting the validity of vocabulary measures are the definition of a word itself, individual variables learners bring to the testing process, test-taking strategies employed by learners, learners' motivation to complete a test, the characteristics of the test itself, the

source of the items included in tests, and the choice of first language versus second language test formats.

As a whole the papers in this book throw valuable light on the issues involved in measuring vocabulary learning in a second or foreign language and illustrate ways in which vocabulary tests can seek to capture the complex and multi-dimensional nature of lexical knowledge.

Michel H. Long
Jack C. Richards

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Editors' introduction

Conventions, terminology and an overview of the book

Over the last 20 years vocabulary research has grown from a 'Cinderella subject' in foreign language teaching and research, to achieve a position of some salience. Vocabulary is now considered integral to just about every aspect of language knowledge. With this development have come standard and widely used tests, such as vocabulary size and lexical richness measures, and very commonly accepted metaphors, such as 'a web of words' to describe the mental lexicon. Less widely known outside academic circles, however, is the extensive work on learners' lexis and the utility, reliability and validity of the tests we use to measure and investigate vocabulary knowledge and growth. Vocabulary is a lively and vital area of innovation in academic approach and research. The penalty we pay for working in so vital a subject area is that even recent, and excellent, surveys of the field are rapidly overtaken by new ideas, fresh insights in modelling and testing, a healthy re-evaluation of the principles we work under, and an ever-growing body of empirical research. The intention of this volume, therefore, is to place in the hands of the reader some of these new ideas and insights. It brings together contributions from internationally renowned researchers in this field to explain much of the background to study in this area, and reconsider some of the ideas which underpin the tests we use. It introduces to a wider audience the concerns, new approaches and developments in the field of vocabulary research and testing.

To place these ideas in context, and to provide a point of entry for non-specialists in this field, this introduction will survey the conventions and terminology of vocabulary study which, if you are not familiar with them, can make even simple ideas impenetrably difficult. The background this introduction provides should allow the chapters which follow to be placed in context and help to explain why the concerns they address are of importance to researchers. The second half of this introduction provides summaries of the chapters.

Conventions and terminology

What is a word?

One of our colleagues used to begin lectures on vocabulary learning by asking his audience how many words they thought they knew in English. Most people had no idea of course, and had to guess, and the answers they suggested varied enormously – from 200 words to many millions. These extremes are unusual but in truth it was a question without a clear answer, because the answer depends on what you mean by a word and therefore what your unit of counting is. According to context and need, researchers can consider *types*, *tokens*, *running words*, *lemmas*, and *word families* as words.

In one sense it is obvious what a word is. Words are the black marks you are reading on this page and you know when one word ends and another one begins because there are spaces between words. There are occasions when it is appropriate to use a definition of this kind in making word counts, for example, in counting the number of words in a student's essay or the number of words in the huge corpus that a researcher will collect so that they can use real examples of word use. When counting words in this way we often refer to them as *tokens* so it is clear what we are talking about. Sometimes we also refer to *running words* with much the same meaning, for example, if you consult a dictionary corpus you may be presented with the information that the word *maunder* occurs on average only once every several million running words.

In addition to knowing the number of words in a text or a corpus, researchers sometimes want to know the number of *different* words that occur in a given text. The terms *tokens* and *types* are used to distinguish between these two ways of counting. *Tokens* refers to the total number of words in a text or corpus while *types* refers to the number of different words. In the sentence:

The cat sat on the mat

there are six *tokens* (a total of six words), but the word *the* occurs twice so there are only five *types*.

But there are problems even with a catch-all definition of this kind. How do you count contractions such as *don't*, *it's* or *won't*? Should they be counted as single words or two? Is the number at the top of this page a word or not? Are the names we have put on the title page of this book words? And if you are counting words in speech rather than writing, how do you count the *ums* and *ers* which always occur? Practice can vary according to the needs of the researcher but often,

numbers, proper nouns and names, and false starts and mistakes are excluded from word counts.

Once you start counting the number of words a person knows more difficulties raise their heads. If a student learns the verb *to work*, for example, this will involve learning the form *works* for use with the third person singular in the present simple tense, the form *worked* for use in the simple past, and *working* for use with continuous tenses. The question arises whether the learner has learned one word or four here. These inflections or changes to the root form of the verb are highly regular and can be applied to most verbs in English. Provided a few simple rules of grammar are known, learners only need to learn a new root form to have these other forms at their disposal and available for use. It is often convenient, therefore, to think of all these word forms as a single unit since they do not have to be learned separately by the learner; learning the root form means all the others can be deduced from it and will therefore also be known. This has the profound advantage of reducing the numbers of words we have to work with in describing vocabulary knowledge to manageable levels: to a few thousand or tens of thousand instead of hundreds of thousands. A collection of words such as *to work*, *works*, *working*, *worked*, comprising a root form and the most frequent regular inflections, is known as a *lemma*. Where a noun has a regular plural formed by adding *-s*, as in *orange* and *oranges*, for example, these two words would also form a single lemma. In most word-frequency counts and estimates of learners' vocabulary sizes, the lemma is used as the basis of counting, and *work, works, working* and *worked* would be counted as just one lemma. Rather confusingly, lemmas are often called words, and researchers are not always consistent in their use of terminology. In both Nation's vocabulary level's test (1983) and Meara and Milton's *X-Lex* (2003a) word knowledge is tested in what are called 1,000-word frequency bands. In fact, the researchers used lemmatised word lists and these should have been referred to as 1,000-lemma frequency bands.

Some estimates of a speaker's vocabulary size, however (for example, Goulden, Nation and Read's (1990) estimate of 17,000 words for educated native speakers of English) use a larger unit still and are actually estimates of the number of *word families* a person knows. The forms of a word which can be included in a lemma are fairly limited. But words often have lots of other forms which are clearly related to the root form. The lemma *work*, for example, includes *working*, *works* and *worked* but does not include *worker* although this is obviously a derived form which is very closely

related. The lemma *govern* would include *governs*, *governing* and *governed* but not *governor* or *government*. Closely related words like this would be called a *word family*. Clearly, estimates of size based on the *lemma* and on the *word family* will be quite different.

At first sight this may appear confusing and quite unnecessarily complex. Certainly, researchers often contribute to the confusion both by being unclear as to the units they use, and by adopting idiosyncratic definitions. The divisions between a word, a lemma and a word family are not entirely arbitrary, however, and are based on Bauer and Nation's (1993) frequency-based groupings of affixes in English. *Lemmas* will generally be words made by using affixes from the top three groups, and *word families* from the top six. Thus, *lemmas* would include only the most common affixes and would not generally involve changing the part of speech from that of the head word, while a *word family* would be much more inclusive. The *lemma* of a word such as *establish*, for example, would include *establishes*, *establishing*, and *established* but not *establishment* which would change the part of speech and includes a suffix at Level 4 in Bauer and Nation's hierarchy, while the *word family* would include *establishment* and many other words using less frequent affixes such as *interestablishment* or *antiestablishment*. Further, this hierarchy of word units is not the product of whim on the part of researchers but rather a result of the need to reduce the figures we work with to manageable proportions. In measuring distance we use millimetres, centimetres, metres and kilometres, to name just a few, according to the size of what is being measured, and in measuring vocabulary we are behaving no differently.

What is 'knowing a word'?

If defining a word has presented problems, then deciding when a word is actually known is no easier. There are a number of qualities which might be included in the definition of *knowing* and this has been added to over the years. Nation's list, in Table 1, is the latest and most comprehensive incarnation.

Depending on how you define *knowing*, you will have very different ideas about what constitutes a learner's knowledge of words, and statistical counts of a learner's vocabulary size will then also vary according to the definition of *knowing* used. Perhaps the most basic, catch-all definition would be simple, passive, word recognition; the learner recognises the form of a word and that it is a word rather than a meaningless jumble of symbols. This aspect of knowing is clearly identified in Nation's table. There are several tests (e.g. Meara

Table 1 What is involved in knowing a word? (from Nation, 2001: 27)

Form	spoken	R	What does the word sound like?
		P	How is the word pronounced?
	written	R	What does the word look like?
		P	How is the word written and spelled?
	word parts	R	What parts are recognisable in this word?
		P	What word parts are needed to express meaning?
Meaning	form and meaning	R	What meaning does this word form signal?
		P	What word form can be used to express this meaning?
	concepts and referents	R	What is included in the concept?
		P	What items can the concept refer to?
	associations	R	What other words does this word make us think of?
		P	What other words could we use instead of this one?
Use	grammatical functions	R	In what patterns does the word occur?
		P	In what patterns must we use this word?
	collocations	R	What words or types of word occur with this one?
		P	What words or types of words must we use with this one?
	constraints on use	R	Where, when and how often would we meet this word?
		P	Where, when and how often can we use this word?

R = receptive, P = productive.

and Jones's EVST, 1990; Meara and Milton's *X-Lex*, 2003a) which use this definition of *knowing*. In principle, a calculation made using this definition will surely include every other kind of knowledge since, presumably, a learner could not reasonably use, attach a meaning to or find a correct collocation for something they do not even recognise as a word. Most of the tests we use to calculate vocabulary size are based on written forms of knowledge and these predict a range of reading- and writing-based language abilities as well, but the ability to recognise or use the spoken form of a word is much less well investigated. Interestingly, initial results from studies using phonologically based vocabulary size tests (Milton, 2005)