

# Two steps backwards: A bibliometric analysis of L2 vocabulary research in 1984

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## Abstract

This paper is the fourth instalment in a series of studies which attempt to plot the way research in L2 vocabulary acquisition has developed over the last fifty years. Earlier papers have analysed the research for 1982, 1983 and 2006 (Meara 2012, 2014, 2015). This paper follows on directly from my analysis of the 1983 research, and it uses the same bibliometric techniques that were used in the earlier papers: the **co-citation methodology**, first developed by Small (1973) and White and Griffith (1981). The analysis of the 1984 data shows some consolidation of the main research themes, but for the most part the L2 vocabulary research published in this year continues to be made up of small research clusters, sharing few common points of reference.

**Keywords:** L2 vocabulary acquisition, vocabulary research, bibliometric analysis

## 1. Introduction

This paper is the fourth instalment in a series of studies intended to examine the way research in L2 vocabulary acquisition has developed over the last fifty years. Earlier papers have analysed the research for 1982, 1983 and 2006 (Meara 2012, 2014, 2015). These analyses show that the research reported in 1982 and 1983 is very different from the research reported in 2006. The Significant Influences that we can identify in the early work appear to be relatively short-lived, and few of them are still being cited in the later work. This suggests that some sort of paradigm shift has taken place in the way researchers think about vocabulary, and it becomes interesting to ask when exactly does this shift take place, and what changes in thinking is the shift comprised of.

In my analysis of the 1983 vocabulary research (Meara 2015), I showed that there had been a marked surge in the number of research outputs. At first sight, it looked as though 1983 might have marked the beginning of the modern re-discovery of vocabulary, as there was a substantial rise in the number of vocabulary research papers appearing in this year. However, as we shall see, 1983 turns out to be something of a false dawn – the surge is not maintained into 1984. In fact, the number of research outputs in the 1984 data was even lower

than the already low level of outputs that had appeared in 1982: the VARGA database (Meara n.d.) logs 41 eligible outputs for 1982, but only 36 outputs for 1984: a clear case of two steps forward and one step back. In spite of this fall back, there are a few features in the 1984 data which make it worth reporting, and there are some hints in the data that significant changes might be on the horizon.

## 2. The data sources

The complete dataset for 1984 is shown in Table 1.

**Table 1:** *The sources used in the analysis.*

**Arnaud, P.J.L.**

The lexical richness of L2 written productions and the validity of vocabulary tests. *University of Essex, Department of Language and Linguistics, Occasional Papers No 29* (1984), 14-28.

**Arnaud, P.J.L.**

A practical comparison of five types of vocabulary tests and an investigation into the nature of L2 lexical competence. AILA Congress, Brussels. 1984.

**Bahrck, H.**

Fifty years of second language attrition: implications for programmatic research. *The Modern Language Journal* 68(1984), 105-118.

**Bahrck, H.**

Semantic memory content in permastore: fifty years of memory for Spanish learned in school. *Journal of Experimental Psychology: General* 113(1984), 1-29.

**Beheydt, L.**

Woordenschat in het VTO [Vocabulary in foreign language teaching]. *Neerlandica Extra Muros* 42(1984), 17-27.

**Bensoussan, M., and B. Laufer**

Lexical guessing in context in EFL reading comprehension. *Journal of Reading* 7(1984), 15-32.

**Bensoussan, M., D. Sim, and R. Weiss**

The effect of dictionary usage on EFL test performance compared with student and teacher attitudes and expectations. *Reading in a Foreign Language* 2(1984), 262-276.

**Binon, J., and A.-M. Cornu**

L'acquisition du vocabulaire en français fonctionnel. [The acquisition of vocabulary in functional French]. *Fachsprache* 6(1984), 10-27.

**Bramki, D., and R.C. Williams**

Lexical familiarisation in economics text, and its pedagogic implications in reading comprehension. *Reading in a Foreign Language* 2,1(1984), 147-163.

**Cunningsworth, A.**

Teaching tips for vocabulary 2. *Practical English Teaching* 4,1(1984), 26-27.

**Dalrymple-Alford, E.C.**

Bilingual retrieval from semantic memory. *Current Psychological Research and Reviews* 3(1984), 3-13.

**Fox, J.**

Computer-assisted vocabulary learning. *English Language Teaching Journal* 38,1(1984), 27-33.

**Kent, J.-P.**

Woordassociatie en vreemdetalenonderwijs. [Word associations in foreign language teaching.] *Levende Talen* 395(1984), 525-530.

**Kirsner, K., M.C. Smith, R.S. Lockhart, H.L. King, and M. Jain**

The bilingual lexicon: language-specific units in an integrated network. *Journal of Verbal Learning and Verbal Behaviour* 23(1984), 519-529.

**Kotsinas, U.-B.**

Semantic over-extension and lexical over-use in immigrant Swedish. *Scandinavian Working Papers in Bilingualism* 2(1984), 23-42.

**Le Compagnon, B.**

Interference and overgeneralization in second language learning: the acquisition of English dative verbs by native speakers of French. *Language Learning* 34,3(1984), 39-67.

**Lightbown, P.M., and G. Libben**

The recognition and use of cognates by L2 learners. In: R.W. Anderson (ed.), *A Crosslinguistic perspective for second language research*. Rowley, Mass.: Newbury House. 1984.

**Lübke, D.**

Der potentielle Wortschatz in Französisch. [Potential Vocabulary in French.] *Praxis des Neusprachlichen Unterrichts* 31,4(1984), 372-379.

**Martin, M.**

Advanced Vocabulary Teaching: the problem of synonyms. *Modern Language Journal* 68,2(1984), 130-137.

**Meara, P.M.**

The study of lexis in interlanguage In: A. Davies, C. Criper, and A.P.R. Howatt (eds.), *Interlanguage*. Edinburgh: Edinburgh University Press. 1984. 225-235.

**Mägiste, E.**

Stroop tasks and dichotic translation: the development of interference patterns in bilinguals. *Journal of Experimental Psychology: Learning, Memory, and Cognition* 10,2(1984), 304-315.

**Mägiste, E.**

Learning a third language. *Journal of Multilingual and Multicultural Development* 5,5(1984), 415-421.

**Perecman, E.**

Spontaneous translation and language mixing in a polyglot aphasic. *Brain and Language* 23(1984), 43-63.

**Pons-Ridler, S.**

Oral comprehension: a new approach. *British Journal of Language Teaching* 22,2(1984), 87-102.

**Potter, M.C., K.-F. So, B. Von Eckardt, and L.B. Feldman**

Lexical and conceptual representation in beginning and proficient bilinguals. *Journal of Verbal Learning and Verbal Behavior* 23(1984), 23-38.

**Saville-Troilke, M.**

What really matters in second language learning for academic achievement? *TESOL Quarterly* 18(1984), 199-220.

**Scarborough, D., L. Gerard, and C. Cortese**

Independence of lexical access in bilingual word recognition. *Journal of Verbal Learning and Verbal Behavior* 23(1984), 84-99.

**Schlyter, S.**

L'acquisition des verbes de déplacement/mouvement par les adultes suédois. [The acquisition of French locative verbs by adult Swedes.] *Papers from the Institute of Linguistics, University of Stockholm*, no 52, 1984.

**Sharwood Smith, M.**

Discussion. In: **A. Davies, C. Criper, and A.P.R. Howatt** (eds.), *Interlanguage*. Edinburgh: Edinburgh University Press. 1984.

**van Helmond, K., and M. van Vugt**

On the transferability of nominal compounds. *Interlanguage Studies Bulletin* 8(1984), 5-34.

**Xue, G., and I.S.P. Nation**

A University Word List. *Language Learning and Communication* 3,2(1984), 215-229.

**Williams, R., and D. Dallas**

Aspects of vocabulary in the readability of content area L2 educational textbooks: a case study.

In: **J.C. Alderson, and A. Urquhart** (eds.), *Reading in a foreign language*. London: Longman. 1984. 199-212.

**Excluded items****Nesi, H.**

Dealing with lexical errors. MSc dissertation, Dept of ESP. 1984. Aston University.

**Price, K.**

Closed-captioned TV: an untapped resource. *MATSOL Newsletter* 12(1984), 4-5.

**Takala, S.**

*Evaluation of students' knowledge of English vocabulary in the Finnish comprehensive school*. Jyväskylä: Reports of the Institute of Educational Research, No. 350. 1984.

Of these, one source (Nesi) was a dissertation and another (Takala) was a book length report: publications of this sort are conventionally not included in co-citation analyses because they cite previous research in a way which is different from what we find in standard research papers. Price proved to be unobtainable. These three sources were therefore excluded from the analysis, leaving a total of only 33 sources to be used in the analysis that follows.

A total of 48 distinct authors contributed to this rather small dataset. Four authors (**Arnaud, Bahrack, Bensoussan and Mägiste**) contributed to two papers. The remaining 44 authors contributed to only a single paper. This distribution is somewhat flatter than the equivalent data for 1982 and 1983, another sign that vocabulary research has not yet built up a good head of steam at this time.

### 3. Analysis

The citations from the 1984 data set were analysed using the same methodology that we used in the earlier papers in this series. The principle analysis goes beyond the raw statistics reported in the previous section, and attempts to identify the important research themes which emerge in the 1984 literature. It does this by means of a **co-citation analysis** of the 33 papers in the data base. The co-citation method was developed by Small in a number of papers published in the 1970s (e.g. Small 1973), building on earlier bibliometric work by Price (1965). The method has been extensively used to analyse research in the natural sciences (e.g. White and Griffith 1981) but does not seem to have been adopted as a standard tool by researchers in the Humanities.

The raw data for a co-citation analysis consists of a list of all the authors cited in the set of papers to be analysed. For each paper in the data set, we make a list of every author

contributing to a source that the paper cites; for each paper, each cited author counts only once, regardless of how many times they are cited in the paper; and for a cited paper with multiple authors, each of the contributors is added to the author list. This raw data is then used to construct a large matrix showing which authors are cited together in each of the papers in the data set: the co-citations. Most authors are typically cited in only a single paper, but other, more influential authors are cited in more than one paper, and often these influential authors are cited alongside other influential authors. Small argued that papers which are characterised by shared co-citations are thematically related, and frequently occurring co-citations can be taken as indicators of influential ideas in the research community. This idea allows us to identify the main theoretical concerns of the research community, and shifts in the way the research community is thinking.

One practical problem with the co-citation approach is that the number of co-citations in even a small data set can be very large. A paper which cites only ten single author sources generates 45 co-citations (Source A is co-cited with Source B, with Source C, with Source D, with Source E, and so on down to Source H – co-cited with Source I and Source J – and the final co-citation between Source I and Source J). Papers that cite large number of sources generate enormous co-citation lists: a single paper that cites 20 single author sources gives us 380 co-citations, while a single paper that cites 50 sources – not uncommon in feature of recent research – gives us 2450 co-citations. And these numbers increase rapidly when sources authored by more than a single author appear in a list of references. Fortunately, the 1984 data set consists of papers with relatively short bibliographies for the most part, but even so 603 unique authors are identified in the research 1984 output. Table 2 shows the number of papers in which these authors are cited.

**Table 2:** *The distribution of citations in the 1984 database.*

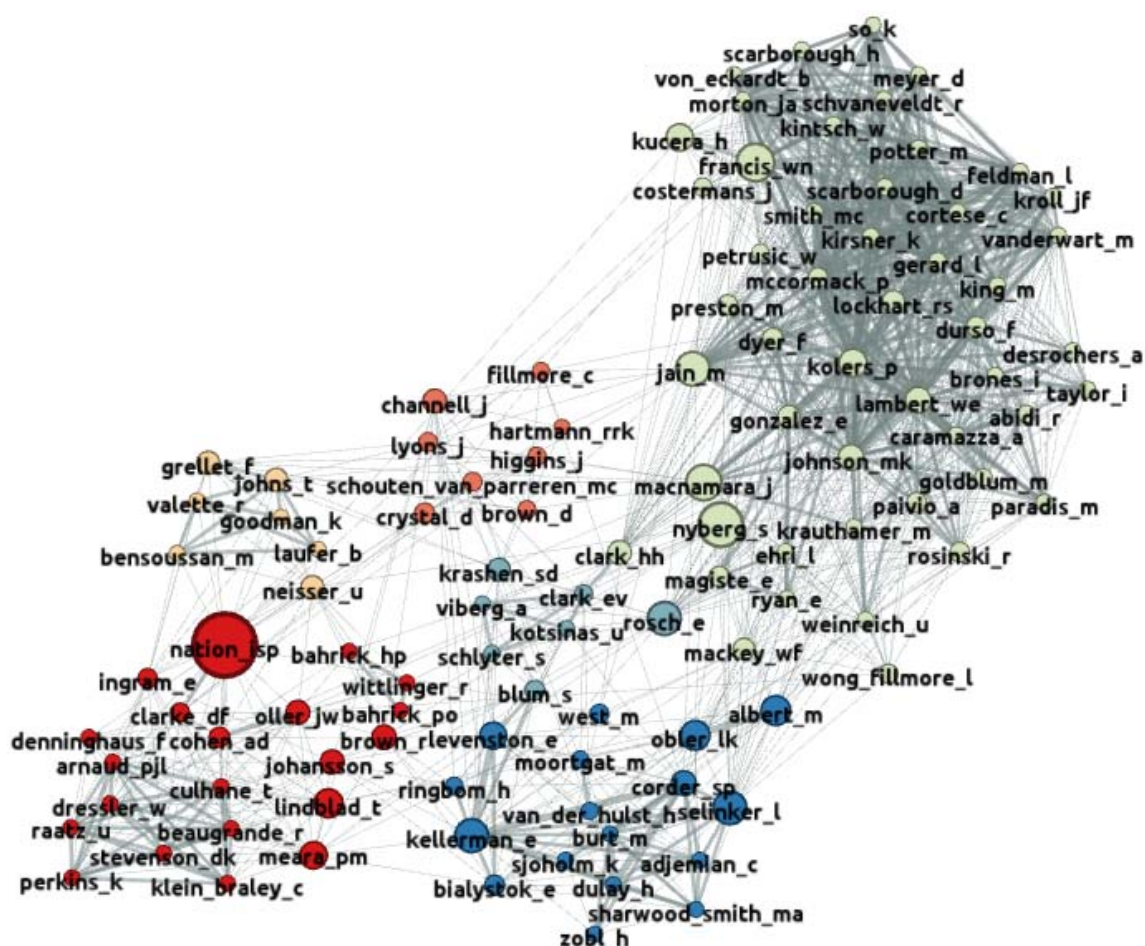
frequency	10	9	8	7	6	5	4	3	2	1
cases				1	0	4	5	22	78	493

As in previous years, the vast majority of authors are cited in only a single research output, but a small number are cited more broadly: **Kolers** is cited in seven papers, **Corder** in six, **Kellerman**, **Lambert** and **McCormack** are each cited in five papers, and **Eve Clark**, **Gonzalez**, **Johnson**, **Macnamara** and **Nation** each appear as citations in four of the 1984 papers.

Normal practice in co-citation analysis is to identify the 100 most-cited authors in a data set, and to focus on the co-citations patterns among these authors. It is important to note that these most-cited authors do not necessarily contribute directly to the 1984 data set, but the work they published in earlier years can be considered to be influential on the research work appearing in 1984. For 1984, we can safely ignore the 493 authors who are cited only in a single paper, in that their influence is relatively limited, but we can identify 110 authors whose work has influenced at least two papers in the 1984 output. This figure of 110 authors is very close to the conventional number of 100 which is commonly used for bibliometric mapping analyses, and the reports that follow are based on this data. However, readers, should be aware that the very small number of papers published in 1984 means that the inclusion threshold for this data set is **extremely** low. This makes the co-citation data difficult to analyse with any

confidence, and considerable caution needs to be exercised when evaluating the analysis that follows.

Once we have identified the most frequently cited authors in the data set, the next step is to examine the way these authors are co-cited in our research outputs. For this paper, this rather laborious process was carried out using a specially written computer program. The output from this program is a list of authors and a list of co-citation pairs in a format that can serve as input to a standard mapping program. The next step in the analysis is for the mapping program to generate a map which shows the pattern of co-citations between the most cited authors. In this paper, we used GEPHI (Bastian, Heymann, and Jacomy 2009) to generate maps from the co-citation data. Gephi performs a cluster analysis on the data, grouping together authors who tend to be cited alongside each other in a number of papers. Gephi's output consists of a physical map which shows the composition of the clusters identified by the program and the relationship between them. The clusters are generally taken to represent "invisible colleges" in the data – i.e. groups of influential researchers who share similar reference points and a common research focus. Gephi's output for the 1984 data is shown in Figure 1.



*Figure 1: Co-citation analysis of 110 authors who are cited at least 2 times in the 1984 corpus. Nodes are sized according to their betweenness centrality.*

In this map, each node represents a single author, and nodes with the same colour are sets of authors who tend to be cited together in the same paper. For example, in this data set, a paper

that cites Kolers is also likely to cite Lambert and Lockhart, but is unlikely to cite Kellerman or Selinker. The strength of the pairings is shown by the thickness of the line connecting the relevant nodes.

Gephi's analysis of the 1984 data identifies six principle clusters, which are described in detail below. Gephi has identified 1285 co-citation links in this data set, but because of the low inclusion threshold we adopted, many of these links are very weak. In fact, co-citations which occur only once in the dataset make up 82% of the total number of edges. With a larger data set, very weak links of this sort would be eliminated by setting a minimum strength requirement for a link to be displayed in the map, but the very low inclusion threshold we used for this data set allows these weak links to strongly influence the structure of the map.

In order to make the overall clustering patterns easier for readers to see, I have provided a second map (Fig. 2) in which these very weak links have been removed, and only the stronger links remain. The effect of this surgery is that Figure 2 contains a number of nodes (15) that are not connected to the main clusters in the map. In addition, some of the clusters fragment into smaller clusters once the very weak links are removed. However, the six clusters identified in Figure 1 are still identifiable in Figure 2.

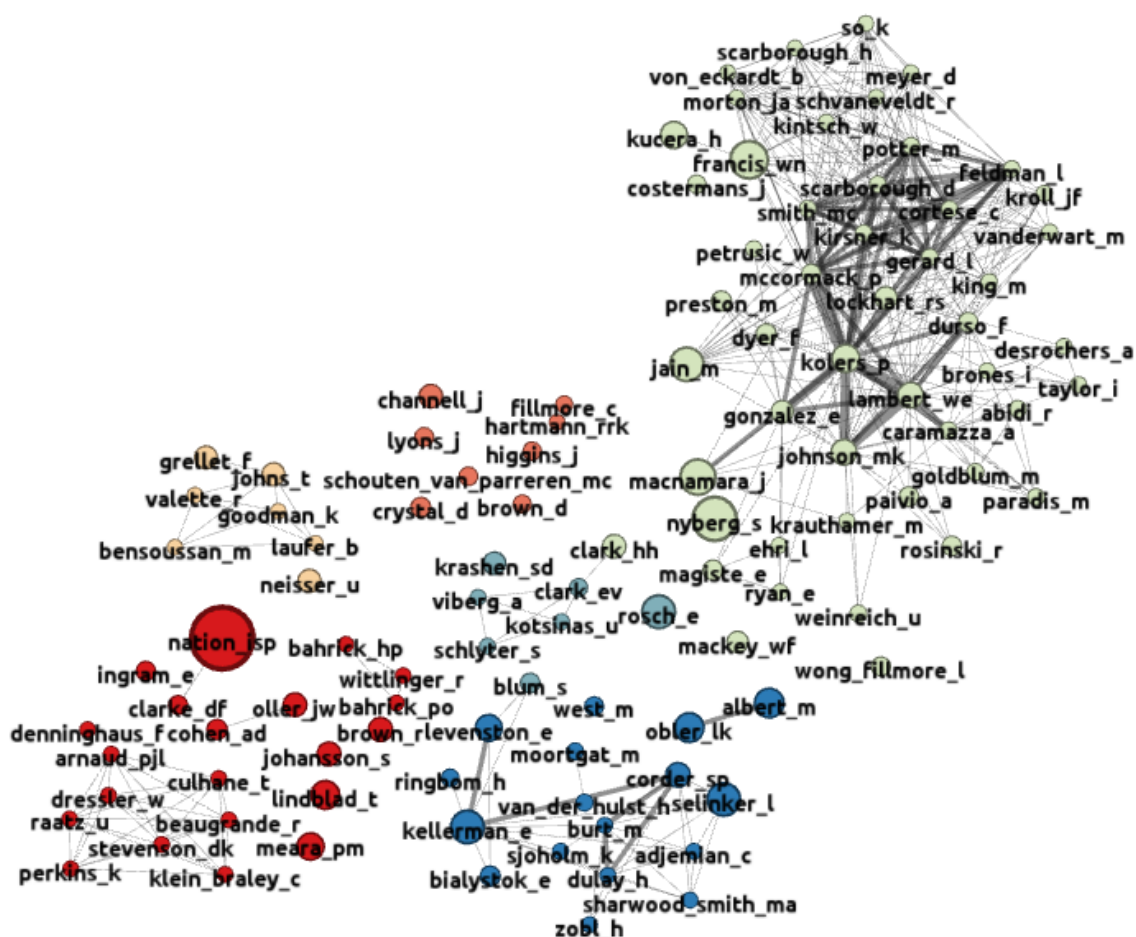


Figure 2: A simplified version of Figure 1, with the weakest links removed.

**Cluster I** at the Northeastern corner of the map is the largest cluster. It consists mainly of psychologists whose work has influenced the study of the way bilingual subjects perform on verbal tasks. This cluster will be familiar to readers from our analyses of data from earlier

years, and it contains a number of influences that were identified in these earlier analyses. This persistent cluster has a high level of connectivity within itself, but it has no strong links to the other clusters in the map.

**Cluster II** at the South Central portion of the map also includes a number of sources who were identified in our analysis of the 1983 data. The sources in this cluster are mainly concerned with lexical errors and lexical transfer, and seem to be strongly associated with the *Interlanguage Studies Bulletin* group based in Utrecht.

The cluster also includes two detached sub-clusters (**Albert and Obler, Moortgat and van der Hulst**) and **West** who appears here as a detached singleton. In our analysis of the 1983 data, Albert and Obler's work was more closely associated with the formal psycholinguistic studies. This subtle shift may suggest that Albert and Obler's work was beginning to influence linguists, and seems to be a sign that mainstream vocabulary research was becoming slightly more aware of the psycholinguistic issues that were considered important at the time. The Moortgat and van der Hulst sub-cluster seems to be a reflection of the growing importance of lexical factors in mainstream linguistic analysis (cf. Covington 1983).

**Cluster III** at the Southwestern edge of the map is the least coherent of the groups identified by Gephi. In Figure 2, it appears as three small subclusters, two pairings and a set of seven detached singletons, though a glance at Figure 1 will show that this cluster is connected by a substantial number of weak co-citations. The sub-cluster containing **Bahrack, Bahrack** and **Wittlinger** represents a small literature that deals with long term acquisition and retention of vocabulary, the first time that this topic has appeared in these maps. The **Dressler/Stevenson** subcluster is mainly concerned with the practical consequences of a small vocabulary. **Clarke and Nation** is a paper that deals with guessing the meanings of unknown words. **Cohen and Oller** seem to be the principal US authors working on vocabulary at this time.

The most notable feature in this cluster is the emergence of Paul Nation as the key figure in terms of *betweenness centrality*. The betweenness centrality measure reflects how likely it is that a source will appear on a path connecting two randomly selected sources in the map. This means that sources with a high betweenness centrality score tend to be people who share co-citation links with two or more large clusters. In this case, the critical co-citations are **Nation ~ Kucera** and **Nation ~ Francis**, which show up as weak links in Figure 1, where they provide the only direct links between Cluster I and Cluster III. **Kucera and Francis** (1967) was a word frequency count widely used at the time by psychologists to control for variation in the characteristics of stimuli used in word recognition studies. Nation, of course, is using word frequency for other purposes, principally for determining the difficulty levels of reading texts in English. Gephi cannot distinguish these two uses of the frequency counts, so Nation's high betweenness score in this data set might not be quite as significant as it appears to be.

**Cluster IV**, at the Western edge of the map, seems to be the 1984 incarnation of the reading cluster that we identified in 1983. The key influence here is **Goodman**.

**Cluster V**, in the central part of the map, is made up of only seven sources. This cluster seems to be mainly concerned with transfer and the development of L2 meanings. This cluster is the only one of the four smaller clusters that has a direct link with cluster I – **Eve Clark**



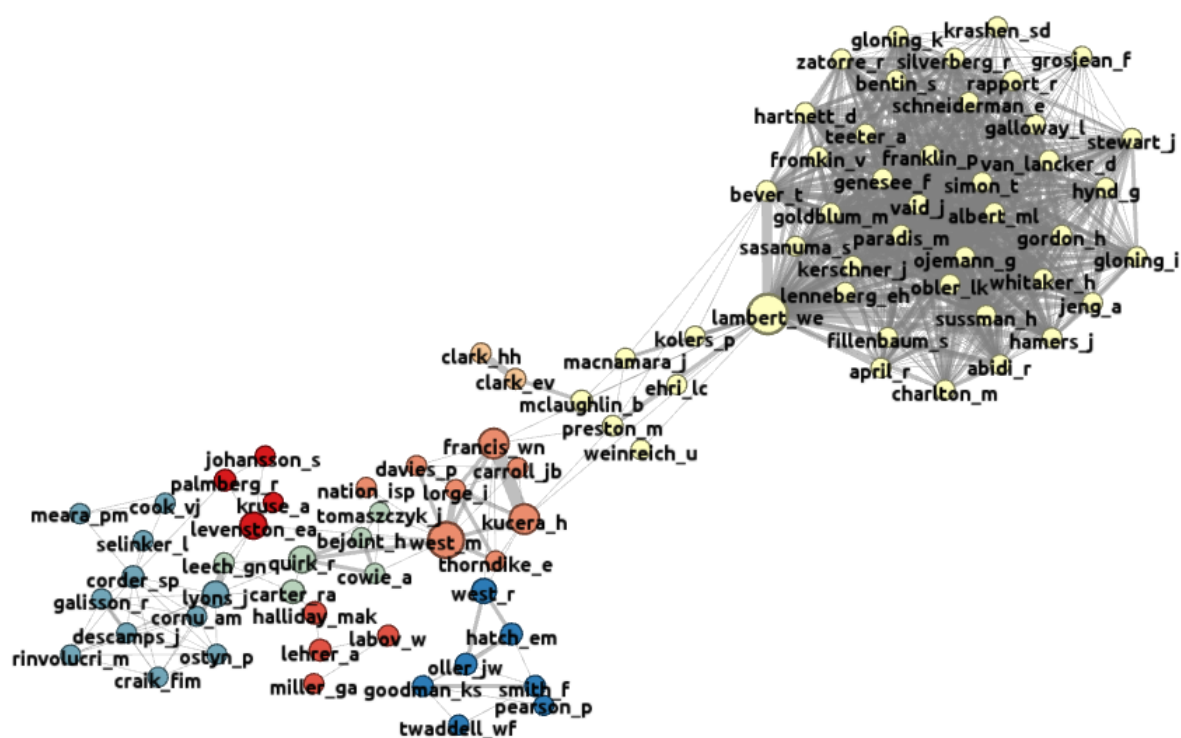
(cluster IV) and **Herbert Clark** (cluster I) published a number of joint papers in the area of child language acquisition in the early 1980s.

The remaining cluster, **Cluster VI**, consists of 8 sources – **Hartmann, Brown, Fillmore, Lyons, Crystal, Higgins, Channell** and **Schouten-van Parreren**. These sources are cited at least twice in the dataset, but the co-citation links between the members of the cluster are weak. On the other hand, each member of this cluster has a co-citation link to at least two other clusters, and this suggests that this cluster might represent important sources from outside the vocabulary research community. **Crystal** fits this general description, as does **Lyons**, whose text book *Introduction to General Linguistics* (1968) was particularly influential around this time. However, the general description does not fit the other sources in the cluster. **Hartmann** represents a dictionary research strand. **Channell** and **Schouten-van Parreren** are both cited here for their work on guessing behaviour. Schouten-van Parreren stands out from the other members of this group who are all British or American sources. In short, it is not easy to establish what holds these sources together as a cluster, but it is probably something to do with the way L2 meanings are represented.

A comparison between the 1984 map and the 1983 data (Fig. 3), shows that the outlines of the co-citation maps for the two years remain broadly similar. Although the cluster patterns are weaker in the 1984 map, both maps contain a densely connected cluster of psychologist researchers, and a much looser set of researchers who would probably identify themselves as linguists. In both maps, this latter group is split into smaller, loosely connected clusters. In contrast, the psychology cluster is strongly interconnected in both maps, though the very dense clustering that dominates the 1983 map has become slightly less intense in 1984, and **Kolers** has replaced **Lambert** as the central figure in this group. Kolers and Paradis published an influential special issue of the *Canadian Journal of Psychology* on psychological and linguistic studies of bilingualism in 1980, which may have contributed to this shift (Kolers and Paradis 1980).

There are a few weak links between the two main cluster groupings, but their number is small.

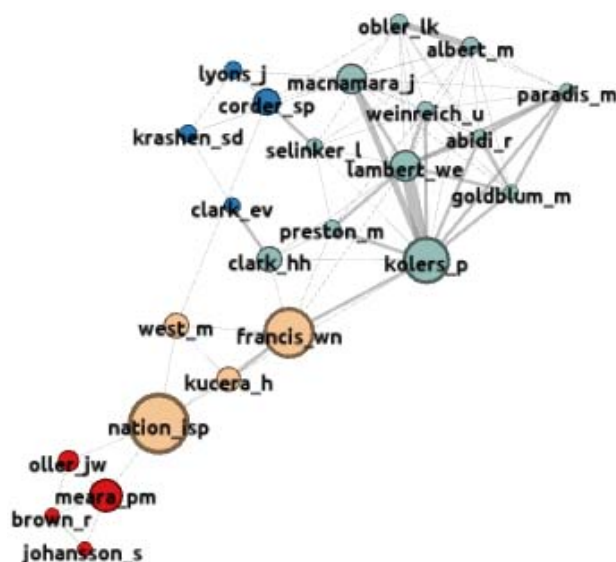
The linguistics clusters in the 1984 map are fewer in number than in the 1983 map, perhaps hinting that some sort of consolidation is beginning to take place. As in the 1983 map, it is difficult to see the emergence of a coherent L2 vocabulary theme in the 1984 data: both within clusters and between clusters, the map is dominated by very weak co-citation links, and even the strongest co-citations appear only a handful of times in the data set. The gulf between the psychological cluster and the linguistics clusters seem to have become rather more obvious than it was in 1983. In numerical terms, the linguistics clusters account for more than half of the sources that appear in the map, but it is clear that they remain heterogeneous in nature, and do not represent an organised or coherent approach to L2 vocabulary acquisition. The largest grouping apart from the psychologists is Cluster III, which contains a number of sources who will go on to become very significant figures in the L2 vocabulary literature, but at this point of time they are still looking marginal to the whole enterprise.



*Figure 3: The 1983 co-citation map. Sources in this map are cited at least three times in the data set.*

A rather different picture emerges if we look at the “survivors” – authors who appear in both the 1983 and the 1984 maps. These authors – and their shared co-citations – are shown in Figure 4. A total of 24 authors survived from 1983 to 1984. In spite of the reduced number of publications in the 1984 database, this was about the same number as survived from 1982-1983, but it represents a slightly smaller percentage of the total data set than did the number of 1982-83 survivors. Using Gephi’s cluster analysis procedures, we find that the survivors can be grouped into four clusters, broadly reflecting our analysis of the larger data set. A surprisingly large proportion of these survivors were also survivors from 1982-1983 – **Lambert, Kolers, Macnamara, Albert, Obler, R Brown, Kucera, Francis, West, Lyons** and **Meara**. These sources are beginning to look like the hard core of L2 vocabulary research around this period. It is worth pointing out, though, that almost everyone in this list is a psychologist.

When we take account of the weaker co-citations in the 1983-84 survivor set, these 24 authors form a connected network of co-citations, but removing the the more ephemeral citations for this map changes the importance of more persistent authors. The strongest co-citations in the survivor network are between **Lambert and Kolers, Lambert and Macnamara, Lambert and Paradis**, and **Albert and Obler** – emphasising the continued importance of the Montreal research group that we identified in our analysis of the 1983 data. However, for the first time we see **Paul Nation** emerge as a significant influence forming part of a cluster focussed on frequency counts and word lists.



*Figure 4: The survivors from 1983-1984.*

In addition to the “survivors”, we can also identify 86 new authors who appear in the 1984 dataset. Some of these authors had already appeared in the 1982 dataset, were not strongly cited in the 1983 dataset, but reappeared in 1984. Most, however, are new authors who might be indicative of new, emergent research trends. We can map out the pattern of co-citations between these 86 new authors, and this analysis is presented in Figure 5.

The main points to note here include the surprisingly large number of new sources in the psycholinguistic cluster, and the emergence of Bahrck’s pseudo-longitudinal studies as a separate research cluster. Rosch and Nyberg emerge as possible points of contact between the main research clusters.

#### 4. Discussion

It is difficult to avoid the conclusion that 1984 was not a good year for L2 vocabulary research – fewer than 40 eligible papers were published in this year, and there was a very large degree of “churn” in the citation data. With only 24 of the 1983 authors persisting into 1984, almost 75% of the authors in the 1984 map are new. In spite of this, and in spite of the small number of papers in the dataset, the overall picture that emerges for 1984 is quite similar to the map we reported for 1983, suggesting that the research environment at this time is relatively stable. Both maps show a highly interconnected cluster of psychologists whose work informs L2 vocabulary research, and a looser collection of linguists who play a role in this literature. However, these two cluster sets are almost completely detached, in the sense that few members of the psychology cluster are co-cited alongside linguists, and vice versa. The very dense co-citations in the psychology cluster suggest that there is a large and coherent body of work in this area, but the scarcity of co-citations from this cluster to the other clusters in the 1984 map suggests that this work is largely ignored by linguists working on L2 vocabulary. Equally, of course, it is rare to find the work of linguists being cited in papers published in the psychological journals, which suggests that the psychologists do not have a strong grasp of the concerns of the linguists. The two main themes that emerge in the linguistics clusters are

**transfer** and **reading**. Transfer seems to be a new theme in the 1984 literature, since it is not well-represented in the 1983 map. This cluster seems to have a strong geographical influence, in that the sources are mainly European researchers. **Kellerman** and **Ringbom** seem to be the most important sources, and again, the influence of the *Interlanguage Studies Bulletin* stands out very clearly. It is more difficult to find a coherent description of the second group of linguistic sources. Broadly speaking, this group is concerned with L2 reading behaviour – a theme which appeared as a nascent cluster in the 1983 map. However, the cluster in the 1984 map looks rather different from the reading cluster in the 1983 map. I think this is probably an artefact of the small number of papers published in 1984. Two members of this cluster (**Arnaud** and **Bensoussan**) both published two papers in 1984: not surprisingly, they tend to cite the same people in both papers and this means that the co-citation links between the authors that they cite appear to be stronger than they really are. Nevertheless, the pattern of co-citations in this cluster hints that we might expect some growth in this area in future years.

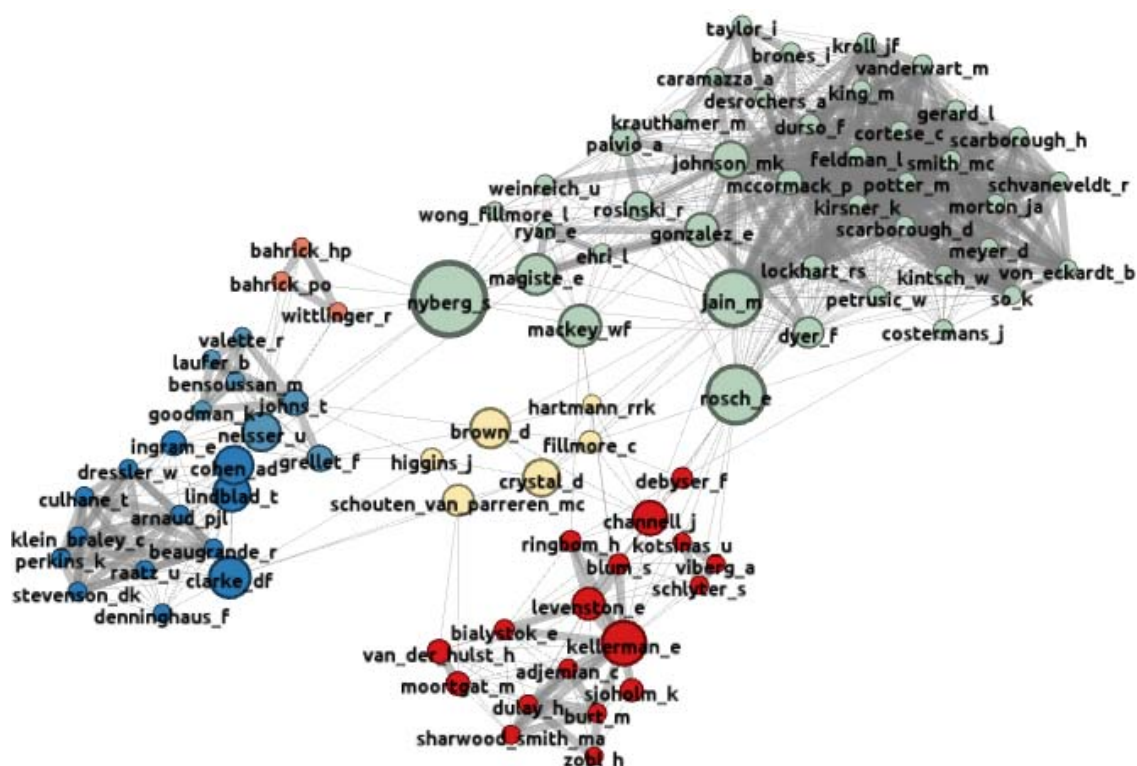


Figure 5: The new sources in the 1984 dataset

A new theme which emerges from the 1984 analysis is **long-term retention and attrition** of L2 vocabulary. This small cluster containing (Bahrlick, Bahrlick and Wittlinger) is particularly interesting because it represents a genuinely new departure from anything that appeared in 1983 or previously. For these studies, Bahrlick used an innovative cross-sectional methodology that he had previously used with Wittlinger to study how people forget the connection between names and faces. The application of this methodology to L2 attrition is interesting partly because cross-sectional methodologies do not play a large role in the research of the time, and when they *are* used, “cross-sectional” generally means only three or four cohorts of subjects whose ages vary by one or two years. Bahrlick’s approach – working

with large numbers of subjects whose experience of forgetting an L2 varied between a few years and fifty years – was a genuine innovation in L2 vocabulary research, and it drew attention to the experiences of a group of older subjects who do not typically figure in the research of the time.

The central cluster in Figure 5 also deserves some comment. This cluster, like the transfer cluster, is composed mainly of Europeans – the only North American is Charles Fillmore, whose semantic frameworks model of syntax prioritised lexical issues in a way that was unusual in mainstream linguistics at the time. (Significantly perhaps, Fillmore spent a period of sabbatical leave at the Edinburgh University in the late 1970s, and this may have made European researchers more aware of his work.) Hartmann's work is mainly concerned with dictionaries: the kind of support dictionaries supply to learners and the way that learners use them. 1983 had seen a small flurry of papers dealing with this topic, and the appearance of Hartmann in the 1984 map is the first sign of this work emerging as a theme that will become important in future L2 vocabulary work. Schouten-van Parreren was probably the most prolific writer on L2 vocabulary acquisition in the period 1975-1982. Her early work was mainly published in Dutch, however, and was not readily available to English speaking researchers, making her work was much less influential than it deserved to be. Here, she is cited for her work on how L2 learners guess the meaning of unknown words (Van Parreren and Schouten van Parreren 1981), a theme which runs through most of her experimental work. Much of Schouten-van Parreren's work is based on the idea of *Action Psychology* – a branch of Soviet psychology, particularly associated with Leontiev and Vygotsky. It provided some very original insights into the ways learners acquire vocabularies, and might have acted as an interesting alternative to the more mechanistic themes that were emerging in the Anglo-Saxon tradition at this time. (cf. Schouten-van Parreren and van Parreren 1979, Schouten-van Parreren 1985.)

## 5. Conclusion

To summarise, then, the 1984 data set does not yet present us with a radical departure from the earlier research in vocabulary acquisition. The research done by the psychologists and psycholinguists, characterised by its strong internal coherence, still outweighs the research carried out by the linguists. The number of psychologists who are new entrants the top most-cited authors list suggests that this characteristic is one that is deeply entrenched in the data, and there is no sign of linguists and psychologists coming together to work on common problems. There are some indications that new research interests (notably dictionaries and attrition) **are** emerging, but for the moment these appear to be minority interests. The large number of small clusters in our maps suggests that vocabulary research continues to be focussed on specific topics, rather than on general theories. The small number of “survivors” – people whose research is influential in 1984 as well as in the immediately previous years – suggests that vocabulary research is nowhere near a mature state of development. It remains to be seen whether the relatively large number of new names appearing in the most cited

authors list, and whether the new ideas that these names represent will push vocabulary research into new directions in the years to follow. We will explore this idea in our next paper.

## References

- Bastian, M., S. Heymann, and M. Jacomy. 2009. *Gephi: an open source software for exploring and manipulating networks*. International AAAI Conference on Weblogs and Social Media.
- Covington, M.A. 1981. Review of T Hoekstra, H van der Hulst and M Moortgat (eds.), *Lexical Grammar*. Dordrecht: Foris. *Language* 59(2): 402-406.
- Kolers, P., and M. Paradis. 1980. Introduction to a special issue on psychological and linguistic studies of bilingualism. *Canadian Journal of Psychology* 34: 287-303.
- Kucera, H., and W.N. Francis. 1967. *A computational analysis of present-day American English*. Providence, RI: Brown University Press.
- Lyons, J. 1968. *Introduction to General Linguistics*. Cambridge: Cambridge University Press.
- Meara, P.M. 2012. The bibliometrics of vocabulary acquisition: An exploratory study. *RELC Journal* 43(1): 7-22.
- Meara, P.M. 2014. Life before Nation: Bibliometrics and L2 vocabulary studies in 1982. In M. Gómez González, F.J. Ruiz de Mendoza Ibañez, F. González García, and A. Downing. *The Functional Perspective on Language and Discourse: Applications and implications*, 111-129. Amsterdam: John Benjamins.
- Meara, P.M. 2015. Vocabulary research in 1983: A bibliometric analysis. *Linguistics Beyond and Within* 1(1): 187-198.
- Meara, P.M. VARGA: the Vocabulary Acquisition Research Group Archive <http://www.lognostics.co.uk/varga/>.
- Price, D. 1965. Networks of scientific papers. *Science* 149(3683): 510-515.
- Small, H. 1973. Co-citation in the scientific literature: A new measure of the relationship between two documents. *Journal of the American Society for Information Science*, 24: 265-269.
- van Parreren, C.F., and M.C. Schouten-van Parreren. 1981. Contextual guessing: a trainable reader strategy. *System* 9(3): 235-241.
- White, H.D., and B.C. Griffith. 1981. Author cocitation: A literature measure of intellectual structure. *Journal of the American Society for Information Science* 32: 163-171.
- Schouten-van Parreren, C. 1985. *Woorden Leren in het vreemde-talenonderwijs*. [Teaching Vocabulary in a foreign language.] Apeldoorn: Van Walraven b.v.
- Schouten-van Parreren, C., and C.F. van Parreren. 1979. De verwerving van een vreemdtalige woordenschat: een literatuurstudie. [The acquisition of a foreign language vocabulary: a review of the literature.] *Levende Talen* 341: 259-270.