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1. Introduction

Interest in lexical errors is not a new phenomenon. Already at the beginning of this century or even earlier, works appeared on lexical disruptions (Meringer and Mayer 1895, Fowler and Fowler 1906, Meringer 1908 and Freud 1924). Later, in the sixties and seventies, investigations of the tip-of-the-tongue phenomenon, slips of the ear and tongue and aphasic errors were conducted by psychologists (cf. collections by Fromkin 1973 and 1980). These studies, which dealt with lexical disruptions in one's native language, observed that these were not erratic but followed systematic patterns, for example by confusing two words similar in the number of syllables, stress pattern, part of speech, but different in one phoneme, (*free/see, Jewry/jewelry*) or in one morpheme (*grouping/groupment, admission/admittance*).

In second language research, lexical confusions were noticed already in the error analysis studies. Duškova (1969), Myint Su (1971), Stock (1976) mention learners' confusions of words that sound or look similar (*case/cause, death/depth, incline/decline, bunch/brunch*). More recently, psycholinguistically oriented studies of association, recall and lexical search (Meara 1983, Meara and Ingle 1980, Zimmerman 1987) have reached a similar conclusion, namely that many lexical errors of learners are form-oriented, i.e. result from recognizing, producing or recalling an erroneous word which sounds or looks similar to the intended one. The psycholinguists argue that form-oriented errors indicate that learners organize their mental lexicons by phonological similarity rather than by semantic similarity, which is also what children do when they learn their L1 (Meara 1983, Heikkinen 1983). Form-oriented confusions were found to be more frequent with less proficient learners than with learners whose foreign language proficiency was higher (Henning 1977). The former produced more acoustic errors, while the latter confused words which were related to each other by meaning, not by sound. Therefore it is claimed that one of the indications of the development of lexis in L2 is a gradual shift from mainly sound-based to meaning-based organization of lexical items, similarly to the shift that occurs in children with the development of their L1 competence. What hasn't been shown is: (1) what features of similarity and difference are prerequisites for lexical confusion in L2, for example why *live* and *leave* are good candidates for error, but not *life, loafed* and *left*, and (2) whether the learner's L1 has any effect on the type and frequency of such confusions.

Though my concern here is with the second issue, I have to briefly dwell on the first, as my choice of test items was determined by what I considered to be error-provoking lexical similarity. For words of similar form, I coined the term 'synforms'. The decision as to what constitutes form similarity, or 'synformy' is based on the analysis of collected error corpus and on what is known about lexical disruptions of native speakers. For a detailed analysis see Laufer 1988). Synforms are usually similar to each other in the number of syllables, stress pattern, syntactic class, initial parts, shared phonemes, features of the confused phonemes. As for the differences, these are represented by the following 10 categories of synforms:

1. Synforms with an identical stem, which productively combines with affixes in present-day English, but has variant suffixes (e.g. *considerable* / *considerate*, *imaginary* / *imaginative* / *imaginable*)
2. Synforms with an identical stem, which does not combine productively with affixes in present-day English and has variant suffixes (e.g. *capable* / *capacious*, *integrity* / *integration*)
3. Synforms which differ from each other in a suffix present in one synform but not in the other (e.g. *historic* / *historical*, *sect* / *sector*)
4. Synforms with an identical stem, which does not combine productively with affixes in present-day English and has variant prefixes (e.g. *consumption* / *assumption* / *resumption* / *assumption*, *compress* / *suppress* / *repress* / *oppress*)
5. Synforms which differ from each other in a prefix present in one synform but not in the other (e.g. *passion* / *compassion*, *fault* / *default*)
6. Synforms identical in all their phonemes except one vowel/diphthong (e.g. *affect* / *effect*, *set* / *sat*, *launch* / *lunch*)
7. Synforms which differ from each other in a vowel present in one synform but not in the other (e.g. *cute* / *acute*, *quite* / *quiet*, *date* / *data*); the additional vowel sound can be at the beginning of one synform, in the middle, or at the end, as can be seen from the examples above.
8. Synforms identical in all their phonemes except one consonant (e.g. *price* / *prize*, *extend* / *extent*)
9. Synforms which differ from each other in a consonant present in one synform but not in the other (e.g. *ledge* / *pledge*, *simulate* / *stimulate*, *mean* / *means* (noun); as in the case of the additional vowel (category 7), the additional consonant in one of the synforms can be either at the beginning of the word, in the middle, or at the end.
10. Synforms identical to each other in their consonants but different in more than one vowel, (e.g. *base* / *bias*, *manual* / *menial*, *embrace* / *embarrass*).

The 10 categories can be grouped into four major (or super-) categories of synforms: suffix synforms (these include categories 1, 2, 3), prefix synforms (4, 5), vocalic synforms (6, 7, 10), and consonantal synforms (8, 9).

2. The study

In a previous study (Laufer 1990) it was shown that synforms in general induced a large number of errors with L2 learners. Some synform categories were also problematic for 13 year old English-speaking children. Our concern in this paper is with the effect L1 can have on type and quantity of synform confusions. Specifically, two research questions were investigated: (1) Are speakers of some languages more susceptible to synform confusions than speakers of other languages, in each of the synform groups?; and (2) Is the internal order of difficulty of the synform categories similar or different for each L1 group?

The answer to these questions can be of both practical and theoretical value. The value of such a study to language teachers and course designers is in providing empirical evidence for areas of lexical difficulty for specific groups of learners and in establishing a hierarchy of difficulty as far as form similarity is concerned. The theoretical interest in the above questions is in the validation of the hypothesis that all L2 learners organize their lexicon by sound similarity and gradually progress towards semantic organization. Therefore, all L2 learners will experience similar synform confusions regardless of their L1. With regard to question 1, if no differences are found in synform susceptibility of the different L1 groups, the hypothesis will be confirmed. If, however, different L1 groups exhibit different error patterns then the hypothesis will have to be modified to include and explain L1 effect on the organization of the lexicon and consequently on lexical confusions.

The answer to question 2 may provide some information about the route of lexical acquisition. Longitudinal studies of the acquisition of some syntactic structures (negatives, interrogatives, relative clauses) have shown that the acquisition of these constructions in L2 proceeds in stages which are very similar in learners, speakers of different mother tongues (Ravem 1974, Butterworth & Hatch 1978, Schumann 1979, 1980). This uniformity was considered as evidence for the claim that the route of L2 acquisition is basically the same for all L2 learners. If one characteristic of lexical development is a gradual change of lexical organization, along a form-based continuum, then one manifestation of such progress would be a gradual decrease in lexical confusions, or mastery of synformic distinctions, first the easier ones, then the more difficult ones. If we accept the claim that orders of difficulty in language reflect orders of acquisition, then by establishing a hierarchy of synformic difficulties for each L1 group, we can assume that the gradual decrease in lexical confusions concomitant with language development proceeds from the easiest synformic distinction to the most difficult one in the hierarchy we establish. If this progression is found to be similar in the different L1 groups, this would strengthen the argument for a similar L2 acquisition route for all learners. If, however, the progression is different in the three L1 groups, this would suggest that the L2 acquisition route is influenced by the learner's mother tongue, or else, the route of acquisition in lexis is different from that of syntax.

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263 adult foreign learners of English participated in the study. 136 were speakers of Semitic languages (Hebrew and Arabic), 58 of Germanic languages (Dutch, German, Swedish), 69 speakers of Romance languages (French, Spanish, Italian, Portuguese, Romanian). Some of the learners were university students in Israel, others were newcomers to the U.K., who were taking English proficiency courses to prepare for academic study in Britain. Their level of English was about that of the Cambridge FCE.¹

Each category of synforms was tested by a separate test with two versions. Both versions were taken by the same students. They had the form of multiple choice tests and the synform error was built into the distractors. Version A consisted of sentences with a gap to be filled, for example:

The factory --- included 15 workers.
a. staff b. stuff c. stiff d. stove

Version B of the same test (given to the subjects after they completed version A) consisted of individual words with four possible explanations of the meaning of each word. The testee had to choose the correct meaning. For example:

Staff
a. a group of people working together
b. material of which something is made
c. not easily changed in shape
d. apparatus used for warming rooms

The ten tests comprised 223 items which were tested twice. The following calculations were made: first, synform susceptibility score of individual subjects on each test, on each test version (raw score and percentage), in other words, the number of times a subject confused the correct word with its synform; then synform susceptibility of each L1 group on each test, each version, that is the total number of synform errors of an L1 group. For example, in test 3, the synform scores of the three L1 groups were as follows:

Version	Semitic		Germanic		Romance	
	A	B	A	B	A	B
	31%	48%	29%	36%	34%	30%

Table 1 (on the following page) shows the synform susceptibility of the three L1 groups relative to each other.

¹ The Israeli matriculation exam is considered to be at that level; in Britain learners were divided into classes on the basis of this exam or a similar one.

Table 1:
Category + example

1. considerable/considerate
2. credible/credulous
3. sect/sector
4. superficial/artificial
5. passion/compassion
6. lunch/launch
7. cute/acute
8. price/prize
9. simulate/stimulate
10. embrace/embarrass

Synform susceptibility

Semantic > Germanic > Romance
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This table reveals that in seven categories the Semitic learners are most error prone, the Germanic speakers are better than the Romance ones in two categories, the Romance learners better than Germanic ones in eight. If we look at the 'super-categories' of synforms, the picture is as follows:

Table 2:
Super-categories

suffix synforms (1,2,3)
 prefix synforms (4,5)
 vocalic syn. (6,7,10)
 consonantal syn. (8,9)

The differences were found to be significant in all the super-categories except the last one. Thus, the Romance learners are generally better than the Germanic ones and each of the European groups is generally better than the Semitic group.

The internal order of difficulty of the ten synform categories was calculated by comparing the differences between the observed and the expected number of synform errors. The greater the difference, the more difficult a category was judged to be for a particular L1 group. Here are the hierarchies of synform errors for the three L1 groups (rank 1 is assigned to the most difficult category, rank 10 to the easiest).

Table 3:
Internal order of difficulty: Ranks

Category	Semitic	Germanic	Romance
1	5	2	7
2	2	3	6
3	1	1	2
4	7	10	10
5	9	6	5
6	6	5	1
7	3	7	4
8	10	9	8
9	8	8	9
10	4	4	3

A clearer picture emerges if we arrange the hierarchy of difficulty in the super-categories. Rank 1 is assigned to the most difficult super-category, four to the easiest one. As can be seen, the orders of difficulty are quite different.

Table 4:
Internal order of difficulty (super-categories): Ranks

Category	Semitic	Germanic	Romance
Suffix syn. (cat 1,2,3)	1	1	2
Prefix syn. (cat. 4,5)	3	4	3
Vocalic syn. (cat. 6,7,10)	2	3	1
Conson. syn. (cat. 8,9)	4	2	4

3. Discussion

3.1 Susceptibility to synformic confusions: direct and indirect transfer

As mentioned before, all subjects were at the same language level. However, the Semitic learners were, in general, more susceptible to lexical confusions than their European peers. Between the two European L1 groups, the Romance was better than the Germanic. One explanation of the lower synform susceptibility of the Romance learners in synform categories 1-5 (the morphological synforms) can be explained by means of the resemblance of these synforms to their translation equivalents in the learners' L1 in the Romance language family, since many of the tested synforms have roots of Latin origin (e.g. *imaginary/imaginative* = French *imaginaire/imaginatif*, *fact/factor* = *fait/facteur*). In other words, the better results of the Romance learners can be explained as manifestation of positive transfer in its traditional sense (the carry-over of similar items and structures from L1 into L2).

Positive transfer in the traditional sense, however, will not explain the significantly better performance of the Germanic group vis à vis the Semitic, as Latin roots were not necessarily more familiar to the Germanic group than to the Semitic one. The reason for the difference between the two groups can be found elsewhere, in the morphology of Germanic and other European languages. The morphology of Germanic and other European languages is concatenative, while that of Semitic languages is nonconcatenative. Therefore, speakers of European languages are used to recognizing words by linearly added morphemes, and distinguishing words of similar roots by different prefixes or suffixes. Speakers of Semitic languages, on the other hand, recognize words by consonantal roots and vowel patterns inserted between the consonants (e.g. root: s,p,r; derivatives: *siper, maspera, isporet, sapar, histaper*). Except in cases of inflections, it hardly happens that words differ only in a morpheme which precedes or follows the root. Therefore, the phenomenon of distinguishing word meaning by a final or initial bit outside the root is foreign to the speakers of Semitic languages. For example, the English morphemes in *unavoidable* might not be familiar to the speaker of German, but the principle of meaning determined by the sum of meanings of prefix+root+suffix is not a strange phenomenon. To the speaker of Hebrew, both the morphemes and the meaning if the suffix is changed. The Semitic speakers are at a disadvantage in distinguishing between morphological systems because of the incongruence in the morphological differences between their L1 and L2 and hence different principles of recognizing differences between words of similar roots. Their inattentiveness to morphemes can therefore be explained in terms of 'indirect interference' (Dagut and Laufer 1982), or 'interference at the conceptual level' (Rivers 1983). Unlike the traditional notion of transfer which relates to the carry over of forms from L1, the indirect transfer (we prefer to use the term transfer as it includes both positive and negative influence) refers to the carry-over of a general linguistic concept from L1. In our case, the Germanic learners do not face a new principle of distinguishing between words by suffixes; all they have to learn is the lexical meaning of the particular morphemes. The Semitic learners of English have to learn not only new lexical meanings of morphemes, but also a new morphological concept of a change in word meaning as a result of a change of suffix or prefix. Thus, in synform categories 1 - 5, the Romance learners can rely on familiar lexical meaning and a familiar morphological principle for distinguishing synforms; the Germanic learners can resort to a familiar principle; the Semitic learners have neither the lexical form, nor the morphological principle available in their L1. The worse results in tables 1 and 2 are therefore not surprising at all.

If we look at the vocalic and the consonantal synforms, we see that the Semitic group was most error prone in the vocalic synforms and least so in the consonantal ones. This can also be explained by the differences in the nature of Semitic and European languages. The number of vowels in Semitic languages is relatively small (five in Hebrew, three in Classical Arabic, two sets of five Israeli-spoken Arabic, as spoken in Israel, the two sets being distinguished by vowel length only). Consequently, in these languages, there are

fewer vocalic distinctions. The fine differences between vowels which exist in German and French are sometimes an acoustic mystery to the Semitic speaker. It is therefore plausible that the European learners are more aware of the differences in meaning that could result from a change in a vowel in a foreign language which they are learning. But there is also another reason for the 'unimportance' of vowels for the Semitic learners. Most meanings in Semitic languages are distinguished by consonants. Most roots are tri-consonantal; the script has practically no vowels in it. Native speakers of Semitic languages are used to recognizing word meanings by the consonants in the root in speech and writing. It is plausible that because of the extra attention that Semitic speakers pay to consonants (having learnt from their L1 that, unlike vowels, consonants are crucial for the understanding of words), the Semitic learners did better on consonantal synforms than the European learners, but worse on the vocalic ones. In other words, here too it is the indirect transfer that facilitates one task (distinguishing between consonantal synforms) and hinders the other (distinction between vocalic synforms).

The notion of indirect transfer can also explain why the Germanic group did worse than the other two L1 groups on the consonantal synforms. In German, there is a phonological rule of the neutralization of voiced and unvoiced consonants in the final position. This rule does not exist in Latin or Semitic languages. German speakers may therefore be less sensitive than the other groups to the lexical contrasts determined by the final consonant (*price/prize, extend/extent*). A test with many items of similar differences may have been more difficult for German speakers; hence the higher number of errors in this group.

I cannot explain why the Semitic learners did better than the Romance on the tests of consonantal synforms. Though the former are more consonant conscious, the latter had the direct transfer to rely on, since many of the items were of Latin origin in tests 8 and 9. (As the difference was not significant it may not be worth dwelling on). Another difference which is difficult to explain is between the Romance and Germanic groups in the vocalic synforms. Learners of both groups are aware of vocalic distinctions. So indirect transfer could not be the reason for the better performance of the Romance group. The tests of the vocalic synforms included more words of Latin origin (about 10% more), but such a small quantity could have hardly worked in favour of the Romance group.

By way of summary, we can argue that most of the differences (10 out of 12) that we found between the three L1 groups in their susceptibility to synform errors (in spite of a similar L2 proficiency level) can be accounted for by the influence of the native language, whether in terms of a direct carry-over of familiar lexical items, or an indirect transfer resulting from similarity or difference in broader linguistic principles between the L1 and the foreign language. Two differences cannot be explained in this way: the superiority of the Semitic learners over the Romance ones in consonantal synforms and the superiority of the Romance over Germanic in the vocalic synforms.

3.2 Organization of the mental lexicon: direct and indirect transfer

With regard to the organization of the 'mental lexicon', greater susceptibility to synform errors shows that the Semitic learners organize their lexicon by form more than the European learners. This can also be explained by the notions of direct or indirect transfer from L1. When formal similarity between two L2 words exists also in L1 (*imaginaire/imaginatif*) and this similarity has been sorted out by the learner in the process of L1 acquisition, confusion of a parallel similarity in L2 is not very likely to happen. The distinction between similar lexical forms that has been made in L1 will directly transfer into L2. Henning's claim that the lexicon of intermediate learners is phonologically organized may be particularly true for speakers of unrelated languages (his subjects were Iranian learners), for whom pairs like *stimuler/stimulate* may look and sound alike. French speakers, on the other hand, have clear mental entries for *stimuler* as opposed to *stimuler, embrasser* as opposed to *embrasser*. A distinction which may hardly be apparent to a speaker of Persian or Hebrew already exists in the mental lexicon of a French or Spanish speaker. As for the effect of indirect transfer, it can be argued that Semitic learners, who are not used to paying attention to the final parts of the words and are less aware of vowels than of the consonants, will develop faint entries for these 'non-salient' parts. This in turn will lead to confusing words that differ precisely in these parts. The findings do not invalidate the hypothesis that the principle of organizing words by form is non-existent with speakers of unrelated languages. What this study suggests is that it is less prominent in such cases. The organization of words in the mental lexicon by formal similarities is a general L2 learning phenomenon (since all learners confuse similar lexical forms), particularly the non-advanced L2 learners. However, the degree of such organization will also be determined by the learner's mother tongue.

3.3 Acquisition of synformic distinctions: L1 effect

Let me now turn to the hierarchy of synformic difficulty in L1 groups. In a previous study (Laufer 1990) it was shown that, in large groups of foreign learners, the order of difficulty in the four super categories was identical to that of adolescents who were learning English as L1 (though the degree of difficulty differed). In the individual ten categories, this order was similar, though not identical. On the basis of these results, I argued that all learners, native and foreign, may follow a similar sequence in learning to distinguish between synforms (starting with an accurate distinction between prefix and consonantal synforms, followed by differentiation between vocalic synforms and ending with an accurate distinction between suffix synforms). This is, however, an overall pattern of development. The present study shows that the developmental route is different within each L1 group. We can see, from table 4, that the most difficult synformic distinction for Semitic and Germanic learners is between the suffix synforms, while for the Romance speakers it is between the vocalic synforms. The easiest distinction for the Semitic and Romance groups is between the consonantal synforms, while for the Germanic it is between the prefix synforms. Different developmental routes towards accurate distinctions of synforms suggest that the gradual reorganization of the mental

lexicon, along a form-based continuum, is a general language learning phenomenon, which will, nevertheless, be affected by the L1 of the learner.

4. Conclusion

The aim of the study was to examine the effect that the native language may have on what is considered to be a general feature of interlanguage, namely confusions of similar lexical forms. Such confusions are considered symptomatic of the way in which L2 learners organize their mental lexicon in the foreign language. The results have indicated that learners of a related L1 have fewer lexical confusions than learners of an unrelated L1 of the same L2 proficiency. The differences were explained in terms of direct transfer (the carry-over of meanings and forms from L1 to L2) and indirect transfer (the carry-over of a parallel or an incongruent linguistic principle of L1 into L2). The different synform susceptibility was taken as evidence for different degrees of form-based mental lexicons in the three L1 groups. Speakers of unrelated languages organize their lexicons in L2 by form more than speakers of related L1s. The orders of synform difficulty were also found different in each of the three L1 groups. These different orders were taken as evidence for the different lexical acquisition routes in terms of the progression of the learner towards the mastery of synformic confusions.

The results suggest that in order to provide an accurate description and explanation of the lexicon of interlanguage, it is not enough to identify the general trends in L2 vocabulary learning and then put forward hypotheses of universal patterns, routines, routes, sequences, orders, and strategies. It is only when learners of different native languages (with other variables held constant) are compared on similar tasks, that one can discover the full extent of the influence that the mother tongue exerts on foreign language learning.

References

- Andersen, Roger. ed. 1979. *The acquisition of use of Spanish and English as first and second Languages*. Washington, D.C.: TESOL.
- Butterworth, Guy, and Evelyn Hatch. 1978. 'A Spanish-speaking adolescent's acquisition of English syntax.' In Evelyn Hatch, ed. *Second language acquisition*. Rowley, MA: Newbury House. p. 231-245.
- Dagut, Menachem, and Batia Laufer. 1982. 'How intralingual are intralingual errors?' In Gerhard Nickel and Dietrich Nehls, eds. *Error analysis, contrastive analysis and second language learning*. Heidelberg: Groos. p. 19-41.
- Dušková, Libuše. 1969. 'On sources of errors in foreign language learning.' *International Review of Applied Linguistics* 7: 1-36.

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- Native language effect on confusion of similar lexical forms
- Fowler, Henry, and E.G. Fowler. 1906. *The King's English*. Oxford: Oxford University Press.
- Freud, Sigmund. 1973 [1924]. 'Slips of the tongue.' In Victoria A. Fromkin, ed. *Speech errors as linguistic evidence*. The Hague: Mouton, p. 46-81.
- Gass, Susan, and Larry Selinker. 1983. *Language transfer in language learning*. Rowley, MA: Newbury House.
- Hatch, Evelyn, ed. 1978. *Second language acquisition*. Rowley, MA: Newbury House.
- Heikkinen, Hannele. 1983. 'Errors in linguistic processing.' In Hakan Ringbom, ed. *Psycholinguistics and foreign language learning*. Abo: Abo Akademi Press.
- Hemning, Grant. 1973. 'Remembering foreign language vocabulary: Acoustic and semantic parameters.' *Language Learning* 23: 185-96
- Laufer, Batia. 1988. 'The concept of "synforms" (similar lexical forms) in vocabulary acquisition.' *Language and Education* 2: 113-32
- Laufer, Batia. 1990. "'Sequence" and "order" in the development of L2 lexis: Some evidence from lexical confusions.' *Applied Linguistics* 11: 282-96.
- Meara, Paul. 1983. 'Word associations in a foreign learning: A report on the Birbeck Vocabulary Project.' *Nottingham Linguistic Circular* 11/2: 29-38
- Meara, Paul, and Stephen Ingle. 1986. 'The formal representation of words in an L2 speaker's lexicon.' *Second Language Research* 2: 160-71.
- Meringer, A. 1908. *Aus dem Leben der Sprache*. Berlin: Behr.
- Meringer, A., and K. Mayer. 1895. *Versprechen und Verlesen*. Stuttgart: G.J. Göschen'sche Verlagsbuchhandlung.
- Myint, Su. 1971. 'The analysis of lexical errors.' M. Litt. Thesis. University of Edinburgh.
- Ravem, Roar. 1974. 'The development of WH-questions in first and second language learners.' In Jack Richards, ed. *Error analysis*. London: Longman, p. 134-155.
- Richards, Jack, ed. 1983. *Error analysis*. London: Longman.
- Rivers, Wilga. 1983. 'Foreign language acquisition: Where the real problems lie.' In Wilga Rivers, ed. *Communicating naturally in a second language*. New York: Cambridge University Press, p. 155-168.
- Scarcella, Robin, and Stephen Krashen, eds. 1980. *Research in second language acquisition*. Rowley, MA: Newbury House.
- Schumann, John. 1979. 'The acquisition of English negation by speakers of Spanish: A review of the literature.' In Roger Andersen, ed. *The acquisition of use of Spanish and English as first and second languages*. Washington, D.C.: TESOL.
- Schumann, John. 1980. 'The acquisition of English relative clauses by second language learners.' In Robin Scarcella and Stephen Krashen, eds. *Research in second language acquisition*. Rowley, MA: Newbury House.
- Stock, Roberta. 1976. 'Some factors affecting the acquisition of foreign language lexicon in the classroom.' Ph.D. Thesis. Urbana, Champaign: University of Illinois.
- Zimmerman, Rüdiger. 1987. 'Form-oriented and content-oriented lexical errors in L2 learners.' *International Review of Applied Linguistics* 25: 55-67.