Cross-Linguistic Influences in the Acquisition of Nominal Compounds

Pál Heltai

This paper reports on learning experiments designed to explore the learnability of compounds by foreign language learners. The results indicate that the learnability of compounds seems to be influenced by cross-linguistic differences between L1 and L2, including morphological structure, semantic equivalence of constituents, transparency, and congruence or incongruence between metaphorical motivation. It may also be influenced by previous knowledge of the meanings of constituents, frequency and some other factors. The compounds that seem easiest to learn tend to be parallel in morphological structure with the L1 item, transparent, descriptive, non-metaphorical, and tend to belong to a productive pattern. Learnability depends both on cross-linguistic differences and universal principles of lexical acquisition.

Keywords: *cross-linguistic influences, lexical acquisition, compounds, transferability, learnability*

1. Introduction

1.1 *Contrastive analysis*

Back in the 1950s and 1960s, the golden age of contrastive linguistics, it was all so easy: all errors were attributed to *transfer*, more precisely negative L1 transfer or interference. The job of contrastive analysis was supposed to be identification of structural differences between L1 and L2, and prediction of interference errors. Cross-linguistic differences were equated with difficulty of learning; difficulties in lexical acquisition were attributed to differences in the semantic or structural patterns of lexical items in L1 and L2 (cf., for example, Celce-Murcia 1985, Ellis 1985). Indeed, intuitively it is very attractive to attribute errors to interlingual differences. Consider the following examples from the author's teaching experience, where learners tend to provide loan translations of Hungarian compounds in English, adding an unnecessary extra root morpheme:

Hungarian	**English**	**Loan translation**
íróasztal	*desk*	**writing table*
mentőautó	*ambulance*	**ambulance-car*
kőszén	*coal*	** stone coal*

Table 1 *Loan translations of Hungarian compounds into English*

However, contrastive analysis failed to live up to its promises. It soon transpired that a substantial proportion of errors cannot be attributed to L1 interference. Many errors that had previously been regarded as *interference errors* were shown to be *developmental errors*, committed by learners with widely different linguistic backgrounds. Another substantial proportion of interference-like 'errors' proved to be instances of conscious *strategy use* (Corder 1978/1983).

1.2 *Cross-linguistic influences*

Proponents of the creative construction theory in the 1970s and 1980s (e.g., Dulay, Burt, & Krashen 1982) claimed that the role of L1 in L2 acquisition was minimal. Yet it soon became apparent that it would be wrong to entirely dismiss L1 influence, and from the 1990s on the influence of L1 on L2 acquisition has again been classed as an important research area. Today there seems to be a general consensus in SLA research that the effect of the mother tongue (L1) is one of the most important factors (Gass 1988, Harley 1995, Swan 1997, etc.). However, in contrast to early contrastive analysis, it is maintained that negative transfer is not the only form of L1 influence and transfer does not always operate directly and automatically. Neither does it always lead to errors: it interacts, in complicated ways, with a number of other factors. It is therefore unnecessary to attribute errors to one source or another: according to Swan (1997), most errors have several sources.

The terms of contrastive linguistics, *L1 transfer* or *L1 interference*, implying a direct connection between L1 form and L2 production and/or acquisition and emphasizing negative transfer, were replaced by the term *cross-linguistic influences.* Introduced in 1986 (Kellerman & Sharwood-Smith 1986), the new term captures the following facts: a) negative L1 transfer/interference is not the only way in which L1 can influence the learning of L2; b) L2 learning may also influence L1 knowledge and use (cf. Jarvis & Pavlenko 2007); c) cross-linguistic influences interact with all the other factors influencing language learning; d) L1 influence on L2 learning is indirect rather than direct.

At present the established thinking is that linguistic contrasts do not account for all errors and for all difficulties of learning, but they do influence L2 acquisition. The exact degree of this influence depends on several linguistic and non-linguistic factors. The *linguistic factors* include (a) inherent difficulty of the structures or lexical items to be acquired, (b) universal principles of acquisition, and (c) L1/L2 contrasts. The most important *non-linguistic factors* are (a) setting (naturalistic vs. classroom), (b) individual variability, (c) level of proficiency (stage of learning), and (d) teaching methods (Ellis, 1985). It is also accepted that the influence of the learner's L1 on L2 acquisition may manifest itself in several different ways, such as

(a) positive transfer and facilitation of learning,
(b) strategy use (L1-based or non-L1-based, with positive or negative outcomes);
(c) inhibition of transfer or L1-based strategies (avoidance);
(d) negative transfer (interference) and difficulty of learning;
(e) time taken to acquire a pattern or item;
(f) ease/difficulty of recall under pressure. (Kellerman & Sharwood-Smith 1986).

Positive transfer may occur where L1 and L2 structures or items are similar, and it may have a facilitative effect on acquisition. It has received less attention in SLA research than negative transfer, but Ringbom (1992) provides conclusive evidence that it plays a major role in language acquisition. Odlin (1989) also cites practical evidence about the effects of positive transfer.

Cross-linguistic influence may also be at work in the choice of strategies: under certain conditions learners may tend to choose L1-based strategies. In the choice of strategies, however, individual variability is also an important factor. The influence of L1 may also be manifested in the avoidance of certain L2 structures or items perceived to be different from

L1. The result is differences in distribution, which may be regarded as covert errors. Strategies may also be avoided: if learners find that L1-based strategies do not work very well, they will tend to avoid L1-based strategies. Negative transfer, even though its effect is not as direct as supposed in the halcyon days of contrastive analysis, does, under certain conditions, play a significant role in the genesis of errors, and *may* lead to difficulty in acquisition, or slower acquisition. The source of negative transfer, structural and/or semantic contrasts, may also account for increased amounts of time needed to acquire a pattern or an item, and may also play a role in learners' uncertainty and increased reliance on L1 patterns under time pressure.

1.3 *Cross-linguistic influences in lexical acquisition*

In L1 lexical acquisition, Clark (1993) proposed the principles of simplicity, transparency and productivity. *Transparency* means that "speakers try to interpret and coin new words that are transparent in meaning – that is, words that are based on known roots and affixes." *Productivity* means that "in forming new words, speakers rely on the most productive option with the appropriate meaning" (ibid.: 136). She also proposes the principle of contrast, according to which speakers take every difference in form to mark a difference in meaning. Each form contrasts in meaning with every other form. As a result, synonyms are avoided: established words have priority and pre-empt other words that would be synonymous with them.

These universal tendencies may also characterize L2 acquisition. For instance, transparency – as will appear from this article – may influence the acquisition of compounds. The avoidance of synonyms in L1 acquisition is paralleled in L2 acquisition by a similar tendency, described by Arabski (1979) as using *primary counterparts.* L2 learners also tend to show a preference for using one form to express one meaning.

Linguistic contrasts and L1-L2 lexical contrasts also play an important role in L2 lexical acquisition. According to Swan (1997) and some other authors (e.g., Jiang 2000, 2002, 2004a, 2004b), learners start with the hypothesis that the words of their mother tongue correspond literally to the words of L2, and progress from a state where they use L2 words with L1 conceptual meaning towards full acquisition. The effects of universal principles and cross-linguistic differences may coincide, mutually heightening or reducing each other.

1.3.1 *Transferability*

A key concept developed by the theory of cross-linguistic influences, particularly in the area of lexical acquisition, is the concept of *transferability*. It is transferability that governs most inter-language processes, manifesting itself in positive or negative transfer, avoidance or L1-based strategy use. According to Kellerman (1983), learners *may* be inclined to transfer structural patterns or items from L1 into L2 on the basis of *markedness* and *perceived distance between the two languages*. It is transferability that will decide whether learners will be inclined to fall for actual, direct transfer, or be influenced by their L1 in more subtle ways, such as inhibition of positive transfer, avoidance or L1-based strategy use. Transferability is also subject to individual variability and stage of learning.

Negative transfer or interference is likely to occur when learners are mistaken in their judgement of transferability, i.e., when a structure or item they judge as unmarked proves to be marked. We may call this deceptive unmarkedness or *deceptive transferability*. In the case of lexis, deceptive transferability seems to be at its highest where L1 structure is in agreement

with universal principles of lexical acquisition, such as transparency, simplicity and productivity (Clark 1993). Thus, for instance, transfer based on deceptive transferability is likely in the following cases:

- transfer of meanings of polysemous words that are very close to the central meaning;
- transfer of unmarked collocations;
- transfer of cognates;
- transfer of word building patterns, e.g., loan translation of transparent compounds.

1.3.2 *Transfer and Strategy*

The notions of transfer and strategy are overlapping, and indeed, during the evolution of applied linguistics there has been a lot of re-naming, re-interpretation and confusion of the two concepts. There is no space here to trace historical development, so we must confine ourselves to summarising current views.

Transfer, in its literal meaning, is the use of L1 elements in L2. According to this narrow definition only lexical elements can be transferred since grammatical morphemes or constructions are rarely borrowed. In a broader sense, however, transfer includes cases where L1 *patterns of meaning* are transferred into L2 on the basis of perceived similarity of certain structures or lexical items. It is this broader sense that is more current, as reflected in Odlin's (1989) definition (which, as he himself admits, is rather vague), "transfer is the influence resulting from similarities and differences between the target language and any other language that has been previously (and perhaps imperfectly) acquired" (ibid.: 27).

Transfer is usually unconscious: learners are not aware of a problem and do not realize that they are following L1 patterns: they *believe* that they are using an existing and correct L2 form, and are unable to repair even if they can use the monitor. In other cases transfer occurs even when learners have acquired the rules of L2, but under pressures of communication, especially in the case of less thoroughly acquired structures or items, they will tend to fall back on L1 patterns. This is again unconscious, but in this case the learners may be able to avoid transfer if they have time to use the monitor. An example of the first case, when learners will unthinkingly use direct and automatic transfer is the case of false cognates. At the beginner stage, few Hungarian learners will stop to think before using **alcoholist* (the anglicized form of Hungarian *alkoholista*) when meaning *alcoholic* or *heavy drinker.* An example of the second case is the use of *he* instead of *she* by advanced Hungarian learners of English under conditions of time pressure: since Hungarian has no gender distinction in third person pronouns, maintaining the distinction in English often requires conscious attention.

Strategies or strategic transfer is different from transfer in that the learner is *aware* of a problem: they know that they lack the linguistic means to convey a meaning, or find that they are unable to recall an imperfectly acquired structure or item. To overcome the problem, learners *consciously* select a strategy to convey their meaning. They do not believe that the form they are using corresponds to L2 norms, or at least are not certain (though they may hope that they have found, by sheer luck, such a form). The strategies used to achieve communication may or may not be based on L1 patterns (Poulisse 1993).

The overlap between transfer and strategy is obvious. The degree of consciousness is difficult to establish. When the learner unhesitatingly uses a particular L1 pattern, it is very difficult to decide whether we are dealing with automatic transfer, triggered by strong attraction from L1 patterns, or an L1-based strategy. For example, using *typewriter* instead of

typist may be automatic transfer (and may even be committed by a learner who already knows the word *typist*), but may be the result of conscious use of L1 word formation rules, i.e., a strategy. In this way, the two processes are very difficult to separate.

1.3.3 *Learnability*

Different structural patterns and lexical items may take different times to acquire. Learnability, i.e., ease or difficulty of acquisition of a pattern or item so that the learner can use it correctly may be affected by universal principles and non-linguistic factors as well as linguistic ones, including L1-L2 contrasts.

According to Kellerman (1983), transferability depends on markedness (more precisely, individual sensitivity to markedness) and perceived distance between L1 and L2. It determines the likelihood of automatic transfer or the use of L1-based or non-L1-based strategies by L2 learners. In this way, transferability depends on intralingual factors and is only indirectly related to interlingual contrasts through previous experience of the latter. Learnability, on the other hand, seems to be less dependent on subjective, intralingual factors. It is assumed here that interlingual contrasts play a more direct role in learnability: ease and difficulty of learning will depend, to a great extent, on objective similarities or differences (Jarvis & Pavlenko, 2007) between L1 and L2. Where objective similarity exists, positive transfer will facilitate learning, and where differences dominate, learning will be slower and more difficult.

An item with low transferability might turn out to be quite easily learnable, and vice versa. On the basis of perceived distance between English and Hungarian many learners would be reluctant to transfer *fekvő rendőr* 'lying policeman' into English; however, learning the compound *sleeping policeman* might prove quite easy.

2. Compound words

Compounds are units of language between words and sentences. Generative linguistics tried to derive all compounds from sentences or relative sentences, but the results of these efforts were indecisive (Downing 1977). Yet it is obvious that most compounds are *semantically elliptical*, and the relationship between the different parts of a compound can be made explicit by paraphrasing into sentences.

The different parts of a compound may be in various relationships to each other (Adams 2001, Plag 2003), and without context they can be interpreted in a number of ways (cf. Štekauer 2009). According to Dressler (2006), potentially all compounds are polysemous. Therefore, lexicalized compounds are never fully transparent: they cannot be interpreted by simply adding up the meanings of the elements (Libben 2006).

Compounds may be endocentric and exocentric, transparent and opaque, lexicalized (conventional) and occasional (creative). In endocentric compounds the head is within the compound (in *flower pot* the head is *pot*); in exocentric compounds none of the elements is the head (in *killjoy* neither *kill* nor *joy* is the head). In transparent compounds the central meanings of the elements contribute to the meaning of the compound (although the full meaning can be recovered only if the relationship between the components is recovered from context or convention). In opaque compounds the meaning of one element or both or all the elements may be obscured (e.g., *cran-* in *cranberry*) or represent peripheral or metaphorical meanings of the word (e.g., *grass* in *grass widow*). Lexicalized compounds occur regularly

and are often listed in dictionaries (e.g., *mud slinging*), while occasional compounds are created in the context of a particular piece of discourse (e.g., *chair hurling* in the constructed sentence *Last night there was a lot of chair hurling in the pub*). The number of occasional compounds created online seems to be amazingly high (Benczes 2006).

An interesting area of psycholinguistic research is the issue of compound storage in and retrieval from the mental lexicon. According to recent research, compounds may be stored as units, but they may also be generated online. Apparently, exocentric, opaque and metaphorical compounds tend to be stored as units, while endocentric and transparent compounds may be stored either as units or may be generated online, depending on their frequency and the context (Libben 2006). In this, a parallel may exist with regular and irregular grammatical forms. If Pinker (2001) is right, regular grammatical forms are generated online (*work, worked*), i.e., the inflected or derived form is not stored separately, while irregular forms (*go, went*) are stored and recalled as units, i.e., they are stored separately. The different kinds of compounds are shown in Table 2.

<table>
<tr><td colspan="4">compounds</td></tr>
<tr><td colspan="3">Lexicalised</td><td>occasional, creative</td></tr>
<tr><td>transparent</td><td colspan="2">opaque</td><td rowspan="3">generated online</td></tr>
<tr><td rowspan="2">stored as a unit/generated online</td><td>Obscured</td><td>metaphoric</td></tr>
<tr><td>stored as a unit</td><td>stored as a unit</td></tr>
</table>

Table 2 *Classification of compounds by the present author*

Interpretation of compounds takes place on the basis of the elements, the immediate constituent structure of the compound (in the case of multiple compounds), convention and context.

2.1 *Cross-linguistic differences in compounds*

Compounding is a universal word formation device (Libben 2006), but different languages make use of compounding to different extents. In Hungarian compounding is one of the most important word formation devices, while in English its use is more limited: many Hungarian compounds correspond to single words or word combinations (collocations) in English (Heltai 1987). On the other hand, English makes extensive use of multiple compounding in which the constituents are written separately. The status of such word combinations seems to be ambiguous between compounds and collocations.

Cross-linguistic differences between English and Hungarian compounds may appear in endocentricity/exocentricity, transparency/opaqueness, degree of lexicalization, morphological structure, semantic equivalence between the constituents and markedness, etc. It is assumed here that learnability may be affected most by the last three factors. Accordingly, the present study will focus on these contrasts.

2.1.1 *Morphological Structure*

From the point of view of morphological structure, English and Hungarian compounds may show the following correspondences (see also Heltai 1987, Heltai & Pordány 1989):

English	Hungarian	Hungarian	English
compound	compound	*harangvirág*	*bellflower*
compound	collocation	*hasznos súly*	*payload*
compound	derivation	*tenyeres (ütés)*	*forehand (stroke)*
compound	single word	*fonák (ütés)*	*backhand (stroke)*
		skarlát	*scarlet fever*
collocation	compound	*iparváros*	*industrial town*
derivation	compound	*lökhárító*	*bumper*
single word	compound	*(kő)olaj*	*(crude) oil*
		mentő(autó)	*ambulance*
		nyakkendő	*tie*
		kórház	*hospital*

Table 3 *Correspondences of morphological structure between Hungarian and English compounds*

When a compound corresponds to a single word, the compound may contain the equivalent of the single word (*oil*) or it may not (*tie*). Compounds in one language may also correspond to a lexical gap in another. This was not taken into consideration in the present study.

2.1.2 *Equivalence relations*

Compounds may also contrast in respect of the *semantic (dictionary or translation) equivalence relations* between the constituents. Equivalence relations between L1 and L2 compounds might be broken down into a large number of subgroups using various criteria, such as transparency, endocentricity, metaphoricity, degree of lexicalization, etc., in the first or second or both elements of the compound. However, it would be impractical to take all the possible permutations into consideration. Therefore, the present study uses a simplified classification, as shown in Table 4.

	Hungarian	English
Both constituents are dictionary equivalents	*harangvirág* *káposztalepke*	*bellflower* *cabbage butterfly*
Only first constituent is dictionary equivalent	*napraforgó* *káposztagyalu*	*sunflower* *cabbage-shredder*
Only second constituent is dictionary equivalent	*kőolaj* *százlevelű rózsa*	*crude oil* *cabbage-rose*
Neither constituent is dictionary equivalent	*faliújság* *szalagcsokor*	*notice board* *cabbage-bow*

Table 4 *Equivalence relations between Hungarian and English compounds*

2.1.3 *Markedness*

The usual interpretation of markedness is that unmarked categories are felt to be more systematic, explicit and logical, basic (frequent), central, regular, productive and simpler than

marked ones. Givón (1990) lists cognitive complexity, structural complexity and frequency as the criteria for markedness.

Markedness in lexical items, according to Kellerman (1978, 1983), is significant deviation from the central meaning of the word. Transferred meanings are felt to be marked if the connection between the core meaning and the central meaning is felt to be weak. His experiments show that the less central, less frequent and more metaphorical meanings of polysemous words are less transferable. Thus, in lexical items metaphoricity may be regarded as the most important component of markedness.

Compounds may be regarded as unmarked if they are regular, productive and transparent. They are grammatically regular if the syntactic relations between the constituents are clear or can be interpreted easily. They are semantically regular, and consequently transparent and explicit if their constituents retain their central meaning or one of their central meanings. They are productive if many other compounds can be formed with the same head, like *workhouse, boathouse, glasshouse, greenhouse, cowhouse, family house* or *housefly, fruit fly, green fly* or *tse-tse-fly*. They are explicit inasmuch they are transparent. Compounds that follow frequent, regular patterns and are transparent may be expected to be unmarked and consequently transferable.

Thus, the constituents of *aircraft carrier* and *screwdriver* have, more or less, their literal sense in the compounds, or at least a sense very close to (one of the) core meanings. Compounds of this type will be referred to as *descriptive* in this study. In descriptive compounds the meanings of the constituents together describe or characterize the referent in a straightforward way so that a paraphrase will contain both constituents: an *eggshell* is a kind of *shell* that is found in *eggs*, a *nutshell* is the outer layer of *nuts*, a *cabbage butterfly* is a *butterfly* that probably has to do something with *cabbages*, and an *anthill* is a *hill* built by *ants*. Marked compounds are irregular, unproductive and opaque. Since the most common type of opacity derives from metaphorical extensions of meaning, marked compounds in this study will be designated as *metaphorical.* Metaphoricity may concern one or both constituents. The second constituent of the compound *bookworm*, for example, is metaphorical, since it represents metaphorical extension of the meaning of *worm*, while *scapegoat* as a whole is metaphorical. The more metaphorical a term is the less transparent it is, especially if the ground for the metaphor is obscured. According to Aarts and Calbert (1979), metaphorical meaning may be grounded experientially or symbolically: the former may be regarded as less metaphorical than the latter.

In metaphorical compounds one or both of the costituents do not describe the referent in a straightforward way, and paraphrases will not contain the metaphorical constituent. Apparently, a *butterfly* has very little to do with *butter,* and is not actually regarded as a kind of *fly* (like *housefly*). The referent of the compound *jailbird* is certainly not a *bird*, and *hair-splitting* has nothing to do with either *hair* or *splitting*.

The degree of metaphoricity in compounds varies along a cline in the sense that both constituents may be metaphorical or only one, and also in the sense that some metaphorical meanings can be derived from the central meaning (and everyday experience) more easily than some other metaphorical meanings.

Productivity of the metaphor also plays a role in opacity and markedness: in a way, *cylinder head* is less metaphorical than *bookworm*, since *head* is regularly used to refer to the upper part of objects, while *worm* is less often used to refer to humans. In this way, compounds with the word *head* used metaphorically represent a productive pattern.

According to recent psycholinguistic research, unmarked (regular, productive and transparent) compounds may be stored in the mental lexicon as wholes or they may not; when they are recalled, they may be recalled as wholes or may be generated from their constituents online. Thus, the constituents of *milk powder* may be stored separately, and the compound may be generated from the constituents when it is needed. Alternatively, in a similar way to idioms, *milk powder* may be stored and recalled as a whole. Opaque, marked compounds are stored in and recalled from the mental lexicon as wholes: *butterfly* is unlikely to be generated, on the spur of the moment, from *butter* and *fly.* Obscured compounds such as *breakfast* are probably never generated from scratch, while semi-obscured ones (postman, strawberry, etc.) are usually stored and recalled as wholes, but can, under certain conditions, be generated. Summarizing the above, markedness in compounds will be interpreted here as degree of metaphoricity and productivity of the metaphorical pattern.

2.2 *Testing the learnability of compounds*

Compounds offer a very good testing ground for Kellerman's (1978) notion of transferability, yet so far little work has been done in this field. A transferability study of noun compounds in Dutch and English found that Kellerman's criteria for transferability (perceived distance between L1 and L2 and markedness) do not work in the case of noun compounds (Helmond & Vugt 1984). In another study individual variability was highlighted: Ridley and Singleton (1995) found that there is considerable individual variability in the willingness to create compounds in L2 (see also Singleton 1999).

However, no studies have explored the issue of *learnability.* An exploratory study on the learnability of compounds (Heltai 1987) suggested that *structural contrasts* between Hungarian and English words influenced the learnability of English words by Hungarian learners. Another study (Heltai & Pordány 1989) found some evidence of L1 influence on the acquisition and use of English nominal compounds by Hungarian learners. These studies, however, did not make use of Kellerman's notion of transferability, and did not take into consideration the psycholinguistic aspects of compound storage and retrieval.

The present study was therefore undertaken to explore the *learnability* of English nominal compounds by Hungarian learners, taking into consideration recent advances in the psycholinguistic study of compounds.

2.2.1 *Hypotheses*

The following hypotheses were made:

Hypothesis 1. Contrasts in morphological structure will influence the learnability and retention of L2 English compounds by Hungarian learners. Compounds with a congruent morphological structure, due to positive transfer, will be learnt more easily and effectively than compounds with an incongruent morphological structure.

Hypothesis 2. Equivalence relations will influence the learnability and retention of L2 English compounds by Hungarian learners. Compounds with semantically equivalent constituents, due to positive transfer, will be learnt more easily and effectively than compounds with semantically non-equivalent constituents.

Hypothesis 3. Markedness (metaphoricity) will influence the learnability and retention of L2 English compounds by Hungarian learners. Descriptive (transparent) compounds will be learnt more easily and effectively than compounds with metaphorical constituents.

2.2.2 *Materials and Methods*

Participants. An experiment with 17 participants was carried out to study the learnability of different types of English nominal compounds by Hungarian learners of English. The participants were 17 fourth-year university students (5 male and twelve female) aged between 22 and 24 in the University of Gödöllő, Hungary, majoring in agriculture and agricultural economics, and following a minor course in translation. They had at least four years of English at secondary school and 6 to 8 contact hours of English per week at the university. Their level of proficiency can be described as advanced, near or at the level of Cambridge Proficiency.

The tests. The experiment consisted of a pre-test, a main test and a post-test. In the pre-test, a list of 102 Hungarian compounds was presented to the students at the beginning of a scheduled translation class. This list is presented in Appendix 1. The participants were asked to provide the English equivalents of the words they were certain they knew. It was expressly stated that they were not to make guesses or coin translation equivalents on the basis of the Hungarian words. The time given for this was limited to ten minutes to reduce the time available for strategic word coinage. The purpose of the pre-test was to check previous knowledge of the English correspondents of the Hungarian compounds. The words that were known by at least 3 participants in the pre-test were excluded. In this way, the number of words used in the main test was reduced to 80. Although some of these were known by one or two participants, it was considered that they may still provide useful information on learning by other participants. In the evaluation of the tests this previous knowledge was taken into consideration.

In the main test, immediately following the pre-test, the participants were given a bilingual list of the remaining 80 Hungarian compounds and their English correspondents, and were asked to study the list for ten minutes. (The list is given in Appendix 2.) Then the scripts were collected and the scheduled translation class began. About an hour later, at the end of the lesson, the students were once more given the list of the 80 Hungarian compounds and were asked to supply the English equivalents. For this task they had 15 minutes.

A post-test with the same list was taken one week later. Unfortunately, only 9 students (2 male and 7 female) turned up for that lesson.

Materials. The compounds in the list fell into the following groups according to morphological structure, semantic equivalence relations and metaphoricity (Table 5).

Morphological structure/semantic equivalence		**D**	**M**	**Total**
Compound/compound	1. Both constituents translation equivalents	8	6	14
	2. One constituent different	29	13	42
	3. Both constituents different	4	11	16
Compound/single word	4. Compound (containing the equivalent of the single word correspondent) – single word	2	-	2
	5. Compound (not containing the equivalent of the single word correspondent) – single word	4	3	7
Total		**47**	**33**	**80**

Table 5 *Correspondence of morphological structure, semantic equivalence and metaphoricity in the Hungarian and English compounds used in the tests*

Legend: D – *descriptive*, M – *metaphorical*

As shown above, Hungarian compounds may correspond to phrases, derivations, single words and nothing in English. Since the primary aim in this experiment was to study the learning of compounds where both languages have compounds, only a few pairs of the otherwise typical correspondence Hungarian compound–English single word were included. All the words selected were true compounds: obscured compounds of the type *breakfast* were not included. The various syntactic and semantic relations (Adams 2001, Plag 2003) between the constituents were not checked: it was assumed that they do not affect learnability significantly.

Previous knowledge. A difficulty in studying learnability of compounds lies in the fact that checking previous knowledge of the test words with a group of advanced learners is very difficult, since individual students will know different words, and administering a pre-test to check knowledge of the constituents might provide exposure to the very words we would like to test. Another difficulty is that vocabulary knowledge is not an all-or-nothing matter: at the advanced level learners will have a large number of words at level 2 or 3 of Wesche and Paribakht's (1996) vocabulary knowledge scale (*I have met this word but I am not quite sure about its meaning; I think I know this word and I am sure I would understand it in context*), at the boundary of productive and receptive knowledge.

The solution selected attempted to reduce the uncertainties involved in this variable knowledge by asking the participants in the pre-test to provide the target words if they knew them. It must be allowed, however, that this was a rather imperfect measure since inability to recall based on the Hungarian word does not necessarily mean that the learner does not have some degree of knowledge of the word at some level of the vocabulary knowledge scale. On the other hand, it is also possible that the participant will supply the correct target compound solely on the basis of the Hungarian compound in the belief that they know it, although they are creating it on the model of the Hungarian compound. If, for example, *szél* means *wind* and *vihar* means *storm*, and *szélvihar* is *windstorm*, one may create the English compound and believe that one knows the word, although one has never come across it. Thus, we must allow here for some sort of unconscious, spontaneous transfer. It is probable therefore that the

actual number of words that the students were familiar with must have been higher than the figure indicated by the pre-test.

2.3 *Results*

In this section only the raw figures are presented. No statistical analyses were attempted, since – because of the relatively low number of participants and classroom conditions – the results can only be regarded as tentative, suggesting further lines of research.

Tables 6-14 below show the Hungarian/English word pairs, with the number of correct answers given in the main test, the number of correct answers given in the post-test, and the number of words learnt. In calculating this last figure the number of correct answers in the pre-test was deducted from the number of correct answers in the post-test. The figures in the column *Main test* indicate success of initial learning, while those in the column *Learning* indicate retention. Since only 9 participants took the post-test, the figures in the column *Learning* are just indications of possible tendencies.

A) Descriptive		**Main test**	**Post-test**	**Learning**
Hungarian	**English**	**N=17**	**N=9**	
1. tojáshéj	eggshell	16	7	7
2. káposztalepke	cabbage butterfly	17	6	6
3. madáretető	bird feeder	16	5	5
4. borjúbőr	calfskin	17	4	4
5. hengerfej	cylinder head	14	4	4
6. vesekő	kidney stone	16	5	4
7. komphajó	ferry boat	13	2	2
8. szénaboglya	haystack	9	1	1
Average		**14.75**	**4.25**	**4.13**
B) Metaphorical				
9. oroszlánrész	lion's share	17	8	8
10. hattyúdal	swansong	16	6	6
11. vérfürdő	bloodbath	15	4	3
12. lábjegyzet	footnote	14	4	4
13. véredény	blood vessel	14	4	4
14. szőrszálhasogatás	hair splitting	9	1	1
Average		**14.17**	**4.50**	**4.33**

Table 6 *Learning of compounds where both constituents were semantically equivalent*

A) Descriptive		Main test	Post-test	Learning
Hungarian	**English**	**N=17**	**N=9**	
Hangyaboly	anthill, ant-hill	17	8	8
Békacomb	frog's leg	16	7	7
Hintaszék	rocking chair	14	7	7
Tükörkép	mirror image	15	7	7
Fogpiszkáló	toothpick	16	7	6
Hátúszás	backstroke	17	7	6
Növényvilág	plant kingdom	16	5	5
Égéstér	combustion chamber	13	4	4
Gyertyatartó	candlestick	15	4	4
selyemhernyó	silkworm	15	5	4
Hajógyár	shipyard	15	3	3
Kapufa	goalpost	15	3	3
Lámpaernyő	lampshade	15	3	3
Madárijesztő	scarecrow	10	3	3
repülőgépanyahajó	aircraft carrier	12	3	3
Vadászház	hunting lodge	11	3	3
Zongoraszék	piano stool	10	3	3
Gyomorégés	heartburn	15	2	2
Lendkerék	flywheel	10	2	2
Sárhányó	mudguard	11	2	2
Vendégszoba	spare room	16	2	2
Vízköpeny	water jacket	14	2	2
Búzavirág	cornflower	13	1	1
Géppisztoly	submachine gun	17	1	1
hóvirág	snowdrop	13	3	1
Rizsföld	rice paddy	12	1	1
Villámhárító	lightning rod	13	1	1
Légcső	windpipe	11	0	0
Szentszék	Holy See	14	0	0
Average		**13.83**	**3.41**	**3.24**
B) Metaphorical				
börtöntöltelék	jailbird	17	7	6
Lámpaláz	stage fever	17	5	4
köpönyegforgató	turncoat	13	3	3
szalmaözvegy	grass widow	15	3	3
Szénanátha	hay fever	14	3	3
virágvasárnap	Palm Sunday	16	3	3
Könyvmoly	bookworm	12	3	2
Ágyutöltelék	cannon fodder	17	1	1
Fakopács	woodpecker	10	2	1
Kulcscsont	collar bone	10	2	1
Csigalépcső	corkscrew stairs	10	0	0

szamárköhögés	whooping cough	8	0	0
Szemgödör	eye socket	9	0	0
Average		**12.92**	**2.46**	**2.08**

Table 7 *Learning of compounds where one constituent was semantically non-equivalent*

A) Descriptive		**Main test**	**Post-test**	**Learning**
Hungarian	**English**	**N=17**	**N=9**	
gyöngytyúk	guinea fowl	11	4	4
hajtókar	connecting rod	12	4	4
kényszerzubbony	straight jacket	15	0	0
toronyugrás	high dive	13	3	2
Average		**12.75**	**2.75**	**2.50**
B) Metaphorical				
szoknyavadász	lady killer	15	5	6
gyöngyvirág	lily of the valley	13	5	4
mammutfenyő	redwood	14	3	3
szitakötő	dragonfly	15	3	2
villámháború	blitzkrieg	13	3	2
fűzfapoéta	verse monger	10	1	1
gólyahír	marsh marigold	7	1	1
siralomház	death row	15	1	1
bűnbak	scapegoat	10	0	0
hernyótalp	crawler tracks	4	0	0
szentjánosbogár	glow-worm	5	0	0
Average		**11.00**	**2.00**	**1.82**

Table 8 *Learning of compounds where both constituents were semantically non-equivalent*

A) Descriptive		**Main test**	**Post-test**	**Learning**
Hungarian	**English**	**N=17**	**N=9**	
szőlővenyige	vine	15	7	6
B) Metaphorical				
zuhanyrózsa	rose	16	6	6

Table 9 *Learning of compounds where the Hungarian compound contained the equivalent of the single word English correspondent*

A) Descriptive		Main test	Post-test	Learning
Hungarian	**English**	**N=17**	**N=9**	
géptan		16	7	7
testedzés		17	7	5
tojássárgája		15	5	5
mandulagyulladás		12	5	3
Average		**15.00**	**6.00**	**5.00**
B) Metaphorical				
vadászrepülő		13	2	2
tőkehal		17	1	1
meztelencsiga		16	0	0
Average		**15.33**	**1.00**	**1.00**

Table 10 *Learning of compounds where the Hungarian compound did not contain the equivalent of the single word English correspondent*

The results presented in Tables 6 to 10 are summarised in Tables 11 and 12.

Type of correspondence		**Main test**	**Post-test**	**Learning**
		N=17	**N=9**	
Both constituents equivalent	D	14.75	4.25	4.13
	M	14.17	4.50	4.33
One constituent different	D	13.83	3.41	3.24
	M	12.92	2.46	2.08
Both constituents different	D	12.75	2.75	2.50
	M	11.00	2.00	1.82
Compound/single – no common	D	15.00	6.00	5.00
	M	15.33	1.00	1.00

Table 11 *Summary of the results for learning descriptive and metaphorical compounds with semantically equivalent and non-equivalent constituents*

The aggregate results for descriptive and metaphorical compounds are also presented separately in Table 12.

Type of correspondence	**Main test**	**Post-test**	**Learning**
	N=17	**N=9**	
Descriptive	14.08	4.10	3.72
Metaphorical	13.36	2.49	2.31

Table 12 *The average results for descriptive and metaphorical compounds*

On the basis of the above results, a list of best learned words and another of worst learned words were compiled. In Tables 13 and 14, the numbers 1, 2, 3, 4 and 5 in the column *Type*

indicate semantic and morphological relations (1: both constituents equivalent; 2: one constituent non-equivalent; 3: both constituents non-equivalent; 4: compound – single word (equivalent to a constituent in the compound, and 5: compound – single word (not equivalent to either constituent in the compound), while the letter *D* refers to descriptivity and *M* to metaphoricity.

Hungarian	**English**	**Type**	**Main**	**Post**	**Learning**
oroszlánrész	lion's share	1 M	17	8	8
hangyaboly	anthill	2 D	17	8	8
tojáshéj	eggshell	1 D	16	7	7
békacomb	frog's leg	2 D	16	7	7
hintaszék	rocking chair	2 D	14	7	7
tükörkép	mirror image	2 D	15	7	7
géptan	mechanics	5 D	16	7	7
káposztalepke	cabbage butterfly	1 D	17	6	6
hattyúdal	swansong	1 M	16	6	6
fogpiszkáló	toothpick	2 D	16	7	6
hátúszás	back stroke	2 D	17	7	6
börtöntöltelék	jailbird	2 M	17	7	6
szoknyavadász	lady killer	3 M	15	5	5
madáretető	bird feeder	1 D	16	5	5
növényvilág	plant kingdom	2 D	16	5	5
testedzés	exercise	5 D	17	7	5
tojássárgája	yolk	5 D	15	5	5

Table 13 *Best learned words*

Hungarian	**English**	**Type**	**Main**	**Post**	**Learning**
szénaboglya	haystack	1 D	9	1	1
szőrszál-hasogatás	hair splitting	1 M	9	1	1
búzavirág	cornflower	2 D	13	1	1
géppisztoly	submachine gun	2 D	17	1	1
hóvirág	snowdrop	2 D	13	3	1
rizsföld	rice paddy	2 D	12	1	1
villámhárító	lightning rod	2 D	13	1	1
ágyutöltelék	cannon fodder	2 M	17	1	1

fakopács	woodpecker	2 M	10	2	1
kulcscsont	collar bone	2 M	10	2	1
fűzfapoéta	versemonger	3 M	10	1	1
gólyahír	marsh marigold	3 M	7	1	1
siralomház	death row	3 M	15	1	1
tőkehal	cod	7 M	17	1	1
légcső	windpipe	2 D	11	0	0
szentszék	Holy See	2 D	14	0	0
csigalépcső	corkscrew stairs	2 M	10	0	0
szamárköhögés	whooping cough	2 M	8	0	0
szemgödör	eye socket	2 M	9	0	0
kényszer-zubbony	straight jacket	3 D	15	0	0
bűnbak	scapegoat	3 M	10	0	0
hernyótalp	crawling tracks	3 M	4	0	0
szentjánosbogár	glow-worm	3 M	5	0	0
meztelencsiga	slug	7 M	16	0	0

Table 14 *Worst learned words*

2.4 *Discussion*

The results provide some support for the hypotheses, but some of the findings are contradictory. If we look at Table 11, there seems to be a gradual decline in the figures from descriptive, semantically equivalent compounds to metaphorical, semantically non-equivalent compounds. Semantic equivalence and metaphoricity tended to influence the success of learning: positive transfer appears to work in semantically equivalent compounds, and negative transfer in metaphorical compounds.

However, incongruence of morphological structure seemed to produce unexpected results, and the first hypothesis was not confirmed. According to Tables 9 and 10, showing the learning of words that have a different morphological structure (single words in English corresponding to Hungarian compounds), some of the words were learnt very effectively and were in the best learned category, while some were in the worst. It may be suspected that in some cases the participants had better previous knowledge of the best-learned words, which did not appear in the pre-test because Hungarian compounds are not suitable prompts for the English words (*géptan, testedzés, tojássárgája – mechanics, exercise, yolk*). On the other hand, the main test might have provided some reinforcement for the link between the L1 and L2 words, and the higher score in the post-test may be a reflection of this. In the case of other words where a Hungarian compound corresponds to a monosyllabic English word (such as *cod* and *slug*) which the participants were unlikely to have known previously, initial learning

was relatively successful, while retention was extremely poor. This contrasts with other words, in which initial learning and retention were more proportionate.

The findings provide support for the second hypothesis. Compounds whose constituents show full *semantic equivalence* were learned, on average, more effectively than those with one constituent different, while those compounds which did not show even partial equivalence were learned less effectively. This applies both to initial learning (main test) and retention (post-test). In other words, the success of learning seems to very much depend on *loan translatability*.

The third hypothesis also gained some support in the tests: *metaphoricity* in general tended to have a negative effect. According to the figures in tables, the more metaphorical the term was, the less effectively it was learnt. The list of the 17 best learned words (5 or more correct answers in the post-test) contains 13 descriptive and only 4 metaphorical compounds, while the list of the 22 worst learned words (only one or no correct answer in the post-test) contains 9 descriptive and 15 metaphorical terms. Metaphorical compounds with both constituents different tend to come bottom of the list: altogether 7 compounds of this type (out of 11) are in the worst learned category.

However, some of the data contradict this general trend. Some metaphorical compounds were learned and retained very successfully. Apparently, metaphoricity is not a negative factor if the same metaphor is used in both languages, as in *oroszlánrész* 'lion's share' and *hattyúdal* 'swansong', i.e., where loan translatability obtains, or where the L2 uses a different, but interesting metaphor, and if the meanings of the constituents and the meaning of the compound are easy to understand, as in *börtöntöltelék* 'jailbird' or *szoknyavadász* 'lady killer'.

Differences in the learning of individual compounds suggest that in addition to semantic equivalence and metaphoricity there must have been other factors at work. For example, the second constituent in the Hungarian compounds *börtöntöltelék* 'jailbird' and *ágyútöltelék* 'cannon fodder' is the same (*töltelék* means 'filling', 'stuffing'), yet the former is in the best learned, the latter in the worst learned category. These problems will be discussed in the next section.

2.4.1 *Previous knowledge of components*

The difference between *börtöntöltelék* and *ágyútöltelék* seems to be that the participants probably had a better knowledge of the constituents of the English compound *jailbird* than of the components of *cannon fodder*. While previous knowledge of the English equivalents of the 102 Hungarian compounds as wholes was checked before the main test, no such check was made on the constituents. Apparently, previous knowledge of the constituents has a strong effect on learnability. Even where initial learning was successful, retention was much poorer. Put simply, the learning of compounds seems to be more difficult if the learner does not know the meaning of the constituents. Positive transfer can only have a facilitating effect if the learner has something to transfer – the knowledge of the constituents as separate words. Unknown constituents make learning difficult, whether the compound is descriptive or metaphorical. It should also be mentioned here that metaphorical motivation may be discovered by learners in some compounds which native speakers may not notice.

Psycholinguistic research is underway to explore the extent to which the meanings of the constituents are activated when a compound is activated (Libben & Jarema 2006). It is possible that L2 learners pay more attention to the separate meanings of compound constituents, and while native speakers might not think of *butter* when talking about

butterflies or *buttercups*, foreign learners may, and this may help memorization in the same way as the keyword method does. Here we may mention briefly *deceptive transparency* (Laufer 1991, 1998): learners may attribute the wrong meaning to a compound or a derived word on the basis of the constituents. Deceptive transparency of the L1 word may lead to *deceptive transferability*. In the case of deceptively transparent Hungarian compounds online generation of an English compound using the literal equivalents of the constituents of the Hungarian compound may seem so natural to Hungarian learners that interference errors of this type may become fossilized. Many Hungarians find it difficult to get rid of the use of **writing table* (meaning *desk*), especially under time pressure (Heltai & Pordány 1989). Deceptive transferability has a negative effect on learnability.

2.4.2 *Frequency*

Frequency was not controlled in the tests. In general, the compounds used were not in the first or second 1000 frequency band: since advanced students will probably know the compounds in these frequency ranges, less frequent items had to be selected. In future tests, however, more precise calculations of the frequency and utility of the test items must be made.

There were some indications in the experiments that familiarity with and interest in the referents of the words might also influence success of learning. This was shown by the relatively low hit rate for engineering terms in the list. The participants, students of agricultural economics, were probably not really interested in names of engine components, and this might have had a negative influence on their learning performance. The figures for the learning engineering terms are shown in Table 15. Only one word had a high hit rate (but this word, mechanics, might have been better known previously than indicated by the pre-test), while the rest were below average.

Hungarian	English	Learning
géptan	mechanics	7
hengerfej	cylinder head	4
égéstér	combustion chamber	4
hajtókar	connecting rod	4
lendkerék	flywheel	2
sárhányó	mudguard	2
vízköpeny	water jacket	2
villámhárító	lightning rod	1
hernyótalp	crawler tracks	0

Table 15 *Success of learning in engineering terms*

2.4.3 *Sequence*

According to Ellis (1996, 1997), language learning is sequence learning, and memory for phonological structure affects learnability vitally. From this point of view we might hypothesize that the phonological structure of compounds also influences their learnability, and a compound that contains too many consonants may be more difficult to learn for Hungarian learners than one with few consonants. In this way, *scarecrow* might cause difficulties since both constituents begin with consonant sequences unusual in Hungarian.

Doubts about the pronunciation of *whooping* in *whooping cough* may also have had a negative effect.

Alternatively, we might interpret sequence as the sequence of constituents. If the sequence is not the sequence expected on the basis of the L1 compound, learning may become be more difficult, as in the case of *turncoat* and *scarecrow*, or where the relation between the constituents of the sequence is unclear, as in *scapegoat*. These possible effects, however, were not controlled in this experiment.

3. Conclusions

The learnability of compounds seems to be influenced by cross-linguistic differences between L1 and L2, including morphological structure, semantic equivalence of constituents, transparency and opaqueness, especially congruence or incongruence between metaphorical motivation. In addition, it is probably also influenced by previous knowledge of the meanings of constituents, frequency and some other factors.

Analysis of the best and worst learned words shows that the best learned words tend to be parallel in morphological structure to the L1 item (with the exceptions noted in the previous section), transparent, descriptive, non-metaphorical (with *lady killer* and *dragonfly* as notable exceptions), and tend to belong to a productive pattern (*dragonfly – butterfly, gadfly,* etc.).

The worst learned words tend to have a different morphological structure, tend to be metaphorical (*bookworm, cockpit*), tend to belong to unproductive patterns (*corkscrew stairs, scarecrow*). In addition, they may refer to less frequent or less well-known concepts (*glow-worm, flywheel*) and may contain unknown constituents.

However, metaphoricity in itself did not prove to be a negative factor. Metaphorical English compounds were successfully learned where they contained the same metaphor as their Hungarian equivalents, or even where the metaphor was different, but apt, interesting, and easy to understand. Ease of understanding, however, also depended on the learner's previous knowledge of the constituents.

Learnability is at its highest when the above factors work together allowing *loan translation*. Loan translation seems to be the easiest option in the case of Hungarian learners because their expectations based on L1 structure coincide with universal principles of lexical acquisition.

Motivation in Hungarian words plays a much more important role than in English. Concatenative morphology and the ease of compounding work together so that a change in meaning is usually accompanied by a change of form (Heltai 1987), while in English portmanteau morphology, conversion and transfer of meaning without formal change (semantic motivation) make the form-meaning relation less directly dependent on the one morpheme – one meaning principle. Naturally, Hungarian is also very far from being a fully motivated language (which is impossible), but compared to English is much more motivated. Hawkins (1986) finds a similar difference between German and English, and claims that German is a more explicit language. Thus, on the basis of their L1, Hungarian learners will start with the expectation that Hungarian compounds will correspond to compounds in English, and the constituents will be literal translations.

This expectation is reinforced by the universal principles of lexical acquisition identified by Clark (1993). Children learning their first language coin new words observing

the principles of transparency, simplicity and productivity. We may hypothesize that second language learners start with the same assumptions. As mentioned in 1.3, the initial internal theory of word learning of L2 learners is that there is literal correspondence between L1 and L2 words (Swan 1997). In the case of compounds this means that in the case of derived and compound words literal correspondence, *loan translatability*, is expected until suggested otherwise by experience. This is also in agreement with the universal principle of transparency: what is transparent in L2 must be transparent in L2, too.

Subsequent experience teaches Hungarian learners of English that the language distance between Hungarian and English is large and in the case of marked (metaphorical) meaning it is not safe to transfer L1 patterns. Thus, by the advanced stage, they will be wary of loan translating compounds into English: both spontaneous transfer and L1-based strategy use will tend to be blocked. In other words, transferability will be low. Few advanced learners would risk a literal translation of such obviously marked compounds as *fűzfapoéta* 'verse monger'; literally, 'willow-tree poet' or *gólyahír* 'marsh marigold'; literally, 'stork news', and in general tend to avoid loan translation even with less obviously marked compounds if they have not checked them, avoiding the translation of even *harangvirág* 'bellflower' and *hóeke* 'snowplough', where the English words literally correspond to the Hungarian compound.

However, learnability is not directly related to transferability. While transferability is based on intralingual and subjective criteria (including experience of success or failure in previous attempts at transfer), learnability is based on interlingual and objective criteria: if L1 and L2 structures or items are perceived to be similar, positive transfer will start working. In the case of compounds, once the learner is made aware that loan translation is possible, learning will be very effective. (A precondition seems to be, of course, that learners must know the equivalents of the constituents.)

The explanation seems to be that learning transparent compounds in L1 acquisition very often boils down to learning that such a compound does exist in the language, and the same principle may apply in L2 learning. According to Wesche and Paribakht's Vocabulary Knowledge Scale (1996) the second lowest level of vocabulary knowledge is 'I have already met this word'. In the case of compounds, this knowledge may be equivalent to the highest level of knowledge, if there is a close parallel between the L1 and L2 compound. Compounds seem to have better cross-linguistic equivalences than other words: since many of them are at the sub-specific level (Berlin, Breedlove & Raven 1973), their referents are clearly identifiable, and being less frequent (many of them are peripheral, technical words), they do not amass as many different meanings as other words.

On the other hand, if the L1 and L2 compounds do not correspond in a straightforward way in the two languages, what the learner may remember after the first (or first few) encounters with the word will be 'I have met this word but it is not parallel to the L1 equivalent'. Such a mental note may lead to avoidance, or the use of a non-L1-based strategy, and the time and number of exposures needed to fully acquire the compound will then depend on the factors discussed above.

3.1 *Limitations of the study*

The experimental conditions in this study were obviously limited. The number of participants was low, the tests were conducted during regular language classes (and classroom testing is

always subject to the willingness of the students to take the task seriously), and some variables were not controlled.

The use of bilingual lists in learning and testing learning is also open to challenge. Obviously, words (including compounds) can be and are learnt in many different ways, and the degree to which the L1 equivalent is activated is variable. It is also open to question whether testing the acquisition of compounds by asking participants to translate provides a valid measure of learning. On the other hand, it might be argued that recall of lexical items, especially less frequent ones, is a more conscious process than producing grammatical constructions, and the parallel activation of L1 equivalents may often occur in this process. Nevertheless, it cannot be denied that learning bilingual lists and testing success of learning by the same method allows too much scope for the activation, and consequently influence, of L1 equivalents. L1 influence might be lower with other task types.

3.2 *Lines of further research*

Several important lines of research arise from the present study. Study of learnability should be supplemented with a study of transferability. An important line of research might focus on the use of compounds in L2 learners' communication, aiming to explore cases of spontaneous transfer and conscious strategy use. Since transparent compounds are or may be generated online, the chances for spontaneous transfer would seem to be low, yet the persistent recurrence of some fossilized coinages indicates that unthinking transfer is possible even in this area. A re-run of the tests in a better controlled environment is also desirable.

References

AARTS, Jan M. G., CALBERT, Joseph P. 1979. *Metaphor and non-metaphor.* Tübingen, Germany: Niemeyer, 1979.

ADAMS, Valerie. 2001. *Complex words in English*. Harlow: Pearson Education: Longman, 2001.

ARABSKI, Janusz. 1979. *Errors as indications of the development of interlanguage.* Katowice, Poland: Uniwersytet Śląski, 1979.

BENCZES, Réka. 2005. *Creative compounding in English.* Amsterdam/Philadelphia: John Benjamins, 2005.

BERLIN, Brent, BREEDLOVE, Dennis E., RAVEN, PETER H. 1973. General principles of classifcation and nomenclature in folk biology. In *American Anthropologist*, 1973, vol. 75, pp. 214-242.

CELCE-MURCIA, Marianne. 1985. Contrastive analysis, error analysis, and interlanguage analysis. In CELCE-MURCIA, Marianne, HAWKINS, Barbara (eds.), *Beyond basics: Issues and research in TESOL*. Rowley, MA.: Newbury House, 1985, pp. 60-77.

CLARK, Eve, V. 1993. *The lexicon in acquisition.* Cambridge: Cambridge University Press, 1993.

CORDER, Pit S. 1978/1983. Strategies of communication. In DAERCH, Claus, KASPER, Gabriele (eds.), *Strategies in interlanguage communication*. Harlow: Longman, 1978/1983, pp. 15-19.

DoWNING, Pamela. 1977. On the creation and use of English compound nouns. In *Language*, 1977, vol. 53, pp. 810-842.

DRESSLER, Wolfgang U. 2006. Compound types. In LIBBEN, Gary, JAREMA, Gonia (eds.), *The representation and processing of compound nouns.* Oxford: Oxford University Press, 2006, pp. 23-44.

DULAY, Haidi C., BURT, Marina, KRASHEN, Stephen. 1982. *Language 2.* Oxford: Oxford University Press, 1982.

ELLIS, Nick. 1996. Sequencing in SLA: Phonological memory, chunking, and points of order. In *Studies in Second Language Acquisition*, 1996, vol. 18, pp. 91-126.
ELLIS, Nick. 1997. Vocabulary acquisition: Word structure, collocation, word class, meaning. In SCHMITT, Norbert, MCCARTHY, Michael (eds.), *Vocabulary. Description, acquisition and pedagogy*. Cambridge: Cambridge University Press, 1997, pp. 122-139.
ELLIS, Rod. 1985. *Understanding second language acquisition.* Oxford: Oxford University Press, 1985.
GASS, Susan, M. 1988. Second language vocabulary acquisition. In *ARAL*, 1988, vol. 9, pp. 92-106.
GIVÓN, Talmy. 1990. *Syntax: A functional-typological introduction. Volume 2*. Amsterdam; Philadelphia: John Benjamins, 1990.
HARLEY, Birgit. 1995. *Lexical issues in language learning.* Ann Arbor, MI: Research Club in Language Learning, 1995.
HAWKINS, John A. 1986. *A comparative typology of English and German*. London: Croom Helm, 1986.
HELMOND, K. van & VUGT, M. van. 1984. On the transferability of nominal compounds. In *Interlanguage, Studies Bulletin*, 1984, vol. 8, pp. 5-34.
HELTAI, Pál. 1987. Motivation in English and Hungarian and its effect on vocabulary learning. In *Annales Universitatis Scientiarium Budapestinensis,* Sectio Linguistica XVIII. Budapest, Hungary: ELTE, 19867, pp. 185-207.
HELTAI, Pál, PORDÁNY, László. 1989. Lexical interference in compound words. In *Annales Universitatis Scientiarium Budapestinensis,* Sectio Linguistica XX. Budapest, Hungary: ELTE, 1989, pp. 159-178.
JARVIS, Scott, PAVLENKO, Aneta. 2007. *Crosslinguistic influence in language and cognition.* London; New York: Routledge, 2007.
JIANG, Nan. 2000. Lexical representation and development in a second language. In *Applied Linguistics*, 2000, vol. 21, pp. 47-77.
JIANG, Nan. 2002. Form-meaning mapping in vocabulary acquisition in a second language. In *SSLA*, 2002, vol. 24, pp. 617-637.
JIANG, Nan. 2004a. Semantic transfer and its implications for vocabulary teaching in a second language. In *Modern Language Journal*, 2004, vol. 88, pp. 416-432.
JIANG, Nan. 2004b. Semantic transfer and development in adult L2 vocabulary acquisition. In BOGAARDS, Paul, LAUFER, Batia (eds.), *Vocabulary in a second language*. Amsterdam; Philadelphia: John Benjamins, 2004, pp. 101-126.
KELLERMAN, Eric. 1978. Giving learners a break. In *Working Papers on Bilingualism*, 1978, vol. 15, 309-315.
KELLERMAN, Eric. 1983. Now you see it, now you don't. In GASS, Susan M., SELINKER, Larry (eds.), *Language transfer in language learning.* Rowley: Newbury House, 1983, pp. 112-134.
KELLERMAN, Eric, SHARWOOD-SMITH, Michael (eds.) 1986. *Crosslinguistic influence in second language acquisition*. Oxford: Pergamon, 1986.
LAUFER, Batia. 1991. *Similar lexical forms in interlanguage*. Tübingen: Gunter Narr, 1991.
LAUFER, Batia. 1998. What's in a word that makes it hard or easy: Intralexical factors affecting the difficulty of vocabulary acquisition. In MCCARTHY, Michael, SCHMITT, Norbert (eds.), *Vocabulary description, acquisition and pedagogy.* Cambridge: Cambridge University Press, 1998, pp. 140-155.
LIBBEN, Gary. 2006. Why study compound processing? In LIBBEN, Gary, JAREMA, Gonia (eds.), *The representation and processing of compound nouns.* Oxford: Oxford University Press, 2006, pp. 1-22.
LIBBEN, Gary, JAREMA, Gonia (eds.) 2006. *The representation and processing of compound nouns.* Oxford: Oxford University Press, 2006.
ODLIN, Terence. 1989. *Language transfer: Cross-linguistic influence in language learning.* Cambridge, United Kingdom: Cambridge University Press, 1989.

PINKER, Steven. 2001. *Words and rules: The ingredients of language*. London: Phoenix Orion Books, 2001.
PLAG, Ingo. 2003. *Word formation in English*. Cambridge: Cambridge University Press, 2003.
POULISSE, Nanda. 1993. A theoretical account of lexical communication strategies. In SCHREUDER, Robert, Weltens, Bert (eds.), *The bilingual lexicon.* Amsterdam; Philadelphia: Benjamins, 1993, pp. 157-190.
RIDLEY, Jennifer, SINGLETON, David. 1995. Strategic L2 lexical innovation: Case study of a university-level ab initio learner of German. In *Second Language Research*, 1995, vol. 11, pp. 137-148.
RINGBOM, Hakan. 1992. On L1 transfer in L2 comprehension and L2 production. In *Language Learning*, 1992, vol. 42, pp 85-112.
SCHMITT, Norbert, MCCARTHY, Michael (eds.) 1997. *Vocabulary: Description, acquisition and pedagogy*. Cambridge, United Kingdom: Cambridge University Press, 1997.
SINGLETON, David. 1999. *Exploring the second language mental lexicon*. Cambridge: Cambridge University Press, 1999.
SWAN, Michael. 1997. The influence of the mother tongue on second language vocabulary acquisition and use. In SCHMITT, Norbert, MCCARTHY, Michael (eds.), *Vocabulary: Description, acquisition and pedagogy*. Cambridge: Cambridge University Press, 1997, pp. 156-180.
ŠTEKAUER, Pavol. 2009. Meaning predictability of novel, context-free compounds. In LIEBER, Robert, ŠTEKAUER, Pavol (eds.), *The Oxford handbook of compounding*. Oxford: Oxford University Press, 2009, pp. 272-297.
WESCHE, Marjorie B., PARIBAKHT, Sima, T. 1996. Assessing second language vocabulary knowledge: Depth versus breadth. In *Canadian Modern Language Review*, 1996, vol. 53, pp. 13-40.

APPENDIX 1

Original list of Hungarian and English compounds

1. ágyutöltelék	cannon fodder
2. békacomb	frog's leg
3. borjúbőr	calfskin
4. börtöntöltelék	jailbird
5. bűnbak	scapegoat
6. búzavirág	cornflower
7. csavarhúzó	screwdriver
8. csigalépcső	corkscrew stairs
9. dióhéj	nutshell
10.diótörő	nut-cracker
11.égéstér	combustion chamber
12.faiskola	tree nursery
13.fakopács	wood-pecker
14.fogpiszkáló	toothpick
15.fűzfapoéta	versemonger
16.géppisztoly	submachine-gun

17.géppuska	machine gun
18.géptan	mechanics
19.gólyahír	marsh marigold
20.gyertyatartó	candle-stick
21.gyomorégés	heartburn
22.gyöngytyúk	guinea-fowl
23.gyöngyvirág	lily-of-the-valley
24.hajógyár	shipyard
25.hajtókar	connecting rod
26.halszálka	fishbone
27.hangyaboly	ant-hill
28.harangvirág	bellflower
29.hattyúdal	swansong
30.hátúszás	back stroke
31.hengerfej	cylinder head
32.hernyótalp	crawler track
33.hintaszék	rocking chair
34.hónalj	armpit
35.hóvirág	snowdrop
36.káposztalepke	cabbage-butterfly
37.kapufa	goalpost
38.kényszerzubbony	straight-jacket
39.kereszttűz	crossfire
40.komphajó	ferry-boat
41.könyvmoly	bookworm
42.köpönyegforgató	turncoat
43.kulcscsont	collar-bone
44.lábjegyzet	footnote
45.lámpaernyő	lampshade
46.lámpaláz	stage fever
47.légcső	windpipe
48.lendkerék	flywheel
49.lópatkó	horse-shoe
50.macskaszem	cat’s eye
51.madáretető	bird feeder
52.madárijesztő	scare-crow
53.mammutfenyő	redwood
54.mandulagyulladás	tonsillitis
55.meztelencsiga	slug
56.növényvilág	plant kingdom
57.oroszlánrész	lion’s share
58.orrvérzés	nose-bleeding
59.pilótaülés	cockpit
60.pokolgép	bomb
61.repülőgépanyahajó	aircraft carrier

62.rizsföld	paddy field
63.sárhányó	mudguard
64.selyemhernyó	silkworm
65.sétapálca	walking stick
66.siralomház	death row
67.svábbogár	cockroach
68.szalmaözvegy	grass widow
69.szamárköhögés	whooping cough
70.szemgödör	eye socket
71.szénaboglya	haystack
72.szénanátha	hay fever
73.szentjánosbogár	glow-worm
74.szentszék	Holy See
75.szitakötő	dragonfly
76.szoknyavadász	lady killer
77.szőlővenyige	vine
78.szőrszálhasogatás	hair-splitting
79.tejpor	milk powder
80.tejút	Milky Way
81.testedzés	exercise
82.tojáshéj	eggshell
83.tojássárgája	yolk
84.tőkehal	cod
85.toronyugrás	high dive
86.tükörkép	mirror image
87.ujjhegy	fingertip
88.vadászház	hunting lodge
89.vadászrepülő	fighter
90.vendégszoba	spare room
91.véredény	blood vessel
92.vérfürdő	bloodbath
93.vesekő	kidney stone
94.villámháború	blitzkrieg
95.villámhárító	lightning rod
96.virágágy	flower bed
97.virágpor	pollen
98.virágvasárnap	Palm Sunday
99.vízköpeny	water jacket
100.zongorahangverseny	piano concert
101.zongoraszék	piano stool
102.zuhanyrózsa	rose

APPENDIX 2

List after elimination of words known by at least 3 students

1. ágyutöltelék	cannon fodder
2. békacomb	frog's leg
3. borjúbőr	calfskin
4. börtöntöltelék	jailbird
5. bűnbak	scapegoat
6. búzavirág	cornflower
7. csigalépcső	corkscrew stairs
8. égéstér	combustion chamber
9. fakopács	wood-pecker
10.fogpiszkáló	toothpick
11.fűzfapoéta	versemonger
12.géppisztoly	submachine-gun
13.géptan	mechanics
14.gólyahír	marsh marigold
15.gyertyatartó	candle-stick
16.gyomorégés	heartburn
17.gyöngytyúk	guinea-fowl
18.gyöngyvirág	lily-of-the-valley
19.hajógyár	shipyard
20.hajtókar	connecting rod
21.hangyaboly	ant-hill
22.hattyúdal	swansong
23.hátúszás	back stroke
24.hengerfej	cylinder head
25.hernyótalp	crawler track
26.hintaszék	rocking chair
27.hóvirág	snowdrop
28.káposztalepke	cabbage-butterfly
29.kapufa	goalpost
30.kényszerzubbony	straight-jacket
31.komphajó	ferry-boat
32.könyvmoly	bookworm
33.köpönyegforgató	turncoat
34.kulcscsont	collar-bone
35.lábjegyzet	footnote
36.lámpaernyő	lampshade
37.lámpaláz	stage fever
38.légcső	windpipe
39.lendkerék	flywheel
40.madáretető	bird feeder
41.madárijesztő	scare-crow
42.mammutfenyő	redwood

43.mandulagyulladás	tonsillitis
44.meztelencsiga	slug
45.növényvilág	plant kingdom
46.oroszlánrész	lion's share
47.repülőgépanyahajó	aircraft carrier
48.rizsföld	paddy field
49.sárhányó	mudguard
50.selyemhernyó	silkworm
51.siralomház	death row
52.szalmaözvegy	grass widow
53.szamárköhögés	whooping cough
54.szemgödör	eye socket
55.szénaboglya	haystack
56.szénanátha	hay fever
57.szentjánosbogár	glow-worm
58.szentszék	Holy See
59.szitakötő	dragonfly
60.szoknyavadász	lady killer
61.szőlővenyige	vine
62.szőrszálhasogatás	hair-splitting
63.testedzés	exercise
64.tojáshéj	eggshell
65.tojássárgája	yolk
66.tőkehal	cod
67.toronyugrás	high dive
68.tükörkép	mirror image
69.vadászház	hunting lodge
70.vadászrepülő	fighter
71.vendégszoba	spare room
72.véredény	blood vessel
73.vérfürdő	bloodbath
74.vesekő	kidney stone
75.villámháború	blitzkrieg
76.villámhárító	lightning rod
77.virágvasárnap	Palm Sunday
78.vízköpeny	water jacket
79.zongoraszék	piano stool
80.zuhanyrózsa	rose

Pál Heltai
Gödöllő
Egyetem tér 5
Hungary
pal.heltai@gmail.com

In *SKASE Journal of Theoretical Linguistics* [online]. 2013, vol. 10, no.3 [cit. 2013-06-18].
Available on web page <http://www.skase.sk/Volumes/JTL24/pdf_doc/02.pdf>. ISSN 1339-782X.