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The Perception of Lexical Similarities Between
L2 English and L3 Swedish

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Abstract

The present study investigates lexical similarity perceptions by students of Swedish as a foreign language (L3) with a good yet non-native proficiency in English (L2). The general theoretical framework is provided by studies in transfer of learning and its specific instance, transfer in language acquisition.

It is accepted as true that all previous linguistic knowledge is facilitative in developing proficiency in a new language. However, a frequently reported phenomenon is that students see similarities between two systems in a different way than linguists and theoreticians of education do. As a consequence, the full facilitative potential of transfer remains unused.

The present research seeks to shed light on the similarity perceptions with the focus on the comprehension of a written text. In order to elucidate students' views, a form involving similarity judgements and multiple choice questions for formally similar items has been designed, drawing on real language use as provided by corpora. 123 forms have been distributed in 6 groups of international students, 4 of them studying Swedish at Level I and 2 studying at Level II.

The test items in the form vary in the degree of formal, semantic and functional similarity from very close cognates, to similar words belonging to different word classes, to items exhibiting category membership and/or being in subordinate/superordinate relation to each other, to deceptive cognates. The author proposes expected similarity ratings and compares them to the results obtained. The objective measure of formal similarity is provided by a string matching algorithm, Levenshtein distance.

The similarity judgements point at the fact that intermediate similarity values can be considered problematic. Similarity ratings between somewhat similar items are usually lower than could be expected. Besides, difference in grammatical meaning lowers similarity values significantly even if lexical meaning nearly coincides. Thus, the obtained results indicate that in order to utilize similarities to facilitate language learning, more attention should be paid to underlying similarities.

Keywords: Similarity Judgements, Formal Similarity, Semantic Similarity, Functional Similarity, Transfer, Transfer of Learning, Cross-Linguistic Influence, L2, L3, FLA (Foreign Language Acquisition), Competence, Comprehension

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1. Introduction

1.1 Background, motivation and outline of the study

A group of international students is spotted walking through the Humanities and Social Sciences Library of Linköping University in search of the right shelf. They must have only just arrived and are still trying to find their way around. Suddenly, one of them, an Iranian student, spots a sign saying: “Sociologi”. Only a brief moment goes by before he contentedly announces: “Aha! Look – sociology! Yeah, I know Swedish,” he announces jokingly to his friends and laughs himself at this proclamation.

Scenes like this can often be witnessed in the international environment of the university campus, showing how easily students of all backgrounds can transcend the boundaries of languages to make sense of the new surroundings. This makes it hard to believe that there once was a time when the existence of linguistic transfer was virtually denied by scientists (Odlin 1989 p.ix, Haskell 2001 p.35).

Yet at the present day, the research clearly indicates that cross-linguistics influence has a strong and important effect in foreign language acquisition. One of its manifestations is the facilitative effect of L2 on L3. It is claimed to be particularly helpful in foreign language comprehension at the early stages, and is indirectly conducive even to production.

Already as early as 1957, Lado proclaimed that “those elements that are similar to [a student’s] native language will be simple for him, and those elements that are different will be difficult” (p.2). Despite the abundant criticism that Lado’s (1957) work has been subjected to, the scientists continue to repeat at least the left part of this statement to this day, with some modifications. Ringbom, whose first major publication in cross-linguistic studies appeared in 1978, writes in the introduction to his recent monograph: “...From the very beginning learners profit from similarities they perceive, especially formal similarities, which help them to establish cross-linguistic equivalences” (2006 p.92). And while the fixation on production errors and the easily observable negative transfer tended to suggest that transfer is an undesired process (Odlin 1989 p.23, Ringbom 2006 p.2¹), today hardly anyone would argue against the claim that in learning “a language closely related to your L1, prior knowledge will be consistently useful” (Ringbom 2006 p.1).

Although in the studies of cross-linguistics influence, the main focus has long been on interaction between the native language and the foreign language under acquisition, the influence of all other languages known to a person has by now been recorded at length, leading to the same conclusion that “L1 and *other languages* known to the learner clearly provide an essential aid ... for learning a new language” (Ringbom 2006 p.2, italics added). The study of native tongue effect alone when another language is known to a learner is deemed “clearly insufficient” (De Angelis and Selinker 2001 p.44).

Transfer from previous knowledge of any type can have a facilitative effect of tremendous value². As such, it is sought after by present-day education and has even been called “the ultimate aim of teaching” (McKeough et al. 1995 qtd in Haskell 2001 p.xiii). A common view is that transfer in all areas is growing more important due to the high information load of the age at hand. As Haskell (2001) puts it, “the ability to transfer or generalise from the familiar to the less familiar ...

¹ “Transfer has mostly been discussed in connection with Error Analysis, where learners’ L1based deviations (especially syntactic ones) from the norm of the TL have been easy to spot, while the ways in which L1knowledge has facilitated learning are much more difficult to notice” (Ringbom 2006 p.2)

“Though it’s generally agreed that transfer of learning is most elusive to demonstrate, it is, nevertheless, the key to all effective instruction and learning” (Haskell 2001 p.xiv).

² “Item transfer in comprehension is overwhelmingly positive: if crosslinguistic similarities between items can be perceived and established, comprehension is facilitated” (Ringbom 2006 p.57).

“...some senses may be acquired for free, so to speak, by virtue of their existence in the L1 and the operation of universal generalization processes within the learner” (Kellerman 1989 p.44)

not only renders our world predictable and understandable, but is a necessity for our adaptations to the technological and global demands of the 21 century” (p.37).

However, a common problem with transfer at all levels is that although it occurs on a daily basis, it is most difficult to condition in instructional settings (Haskell 2001 p.9,p.41,p.57). And while repeatedly underlining the facilitative influence of cross-linguistics similarities, Ringbom (2006) admits that proper guidance is necessary to make consistent use of correspondences across languages (p.8).

Thus, unsurprisingly, practical attempts are now being made on the language scene to draw on theory and employ the similarities between languages so as to aid acquisition and increase comprehension. Among such endeavours is, for example, the EuroCom project, which focuses particularly on learning European languages with English as a basis and a kind of word stem bank. The student books also take similarities and differences across languages into consideration (Rehmqvist 2007).

But what are similarities? As Ard and Homburg (1983) have remarked, “similarity, like beauty, may exist in the eye of the beholder, but have no objective existence” (p.162). And on the contrary, some similarities recorded by linguists may go unnoticed by students. In the words of Odlin (1989):

Whatever the relative advantages or disadvantages that cognate forms occasion, more and more research on contrastive lexical semantics shows that *recognition* of cognates is often a problem. Learners may not always note the formal similarities that mark a cognate relationship, and they may not always believe that there is a real cognate relationship. (p.79)

Therefore, it can be seen that what some consider similar, others fail to notice. If resemblances between words are not registered, comprehension and subsequent memorizing cannot ensue. Even when similarity is assumed, there is a risk of encountering deceptive cognates: formally similar lexical items will not always have the same meaning or function. It is believed that more insight into the similarity perception by learners is necessary before an efficient practical framework can be constructed.

The present enquiry thus sees as its goal to shed light on the perception of lexical similarities across a L2 known to a subject and L3 under acquisition. The main focus is placed on comprehension, not production, and reading rather than listening, since a situation of interest is one of a person trying to make sense of a sign, a newspaper or a book in a yet unknown but related language.

To elicit the data, a form with examples from real language use, provided by corpora, has been designed. It was distributed in 6 groups of international students studying Swedish as a foreign language at Linköping University in November 2007. As these students come from many different countries and are all required to prove their proficiency in English for admission, they are assumed to be subjects particularly suited to studies of L2 effect on L3. The data elicited from the form is described and analysed with reference to earlier studies, adopted theoretical positions and the author’s own expectations. However, no tests of statistical significance are run.

The paper is divided into five chapters. The first chapter introduces the problem. The second chapter presents the theoretical background of the study, illustrating the views on transfer of learning in general (Haskell, Singley & Anderton, Vosniadou and Ortony) and its specific instance, linguistic transfer (Lado, Ringbom, Odlin, Kellerman & Smith). An overview is given of three articles that have been particularly important in the formulation of the present study (Ard & Homburg, Ellegård, Tversky). The third chapter describes method and materials at length and provides justification for their choice. The fourth part presents the results and the discussion of the conducted research. The fifth chapter provides the general conclusion.

1.2 Aim and research questions

The aim of the present study is to explore the perception of lexical similarities and gain insight into how the international students see the similarities between English (L2) and Swedish (L3).

Three main questions are postulated in the study:

1. How is similarity rated for:
 - historically related word pairs (words of the same origin - Proto-Indo-European, Proto-Germanic or borrowings from the same Romance language, - the meaning of which may have diverged to different degrees)³;
 - word pairs that exhibit categorical membership;
 - word pairs where words are in subordinate/superordinate relation to each other
 - word pairs where words have similar underlying prototypical⁴ sense
2. How does similarity judgement vary with respect to level of proficiency in Swedish (i.e. between Level I and Level II students)?
3. How is similarity rated for word pairs across different word classes? Is it possible to infer meaning on the basis of different word classes?

It is also expected to provide some clarity as to whether the order of presentation of words influences judgement (similarity) and to see if the students can detect the deceptive cognates with the help of context.

1.3 Method and materials

The approach adopted in the present enquiry finds its origin in cognitive psychology and foreign language acquisition studies, with corpus linguistics used as an essential part of the method.

Word pairs have been selected for similarity judgements while keeping the frequency information from a balanced corpus in mind. Examples of occurrence of such words have been extracted from additional corpora, and on their basis, a form consisting of three parts has been designed. Part I asks for similarity judgements; Part II is a multiple choice task, where a subject has to find an English word closest in meaning to a Swedish word; Part III provides background information about the subject.

Levenshtein distance (LD) is used to measure the formal similarity. No parameter is set for semantic similarity. However, the subjects' ratings are measured against expected ratings of the author. The expectations are set up from the point of view of a learner in a position similar to that of the subjects of the study, a linguist and a potential teacher.

The method and material are described at length below, in the 3rd part of the present paper.

³ One could call them "historical cognates". Although this collocation may sound tautological, it serves to underline that it is not used in the same sense as by Lado (1957) or Odlin, who term all valid formally and semantically similar items cognates, regardless of their historical relation.

Other definitions of cognates are possible, including more mathematical ones, e.g., by Simard et al. (1992): "...word pairs which share the same first four characters (4grams), including also invariant chains such as proper nouns and numbers" (Salkie 2002 p.290).

⁴ The implications of the term "prototypical" here differ from its common use (see 2.4.3.)

2. Theoretical Background

In this part, the theoretical background and vital positions for the present research are presented.

2.1 Transfer of learning

Transfer of learning is a broad term that refers to the use of previously acquired knowledge and skills in new situations. It applies both to motor and mental abilities (Drever 1964 cited in Ard and Homburg 1983 p.175).

Haskell (2001) specifies this concept in the following way: “Transfer refers to how previous learning influences current and future learning, and how past or current learning is applied or adapted to similar or novel situations” (p.23). Such definition counters the view of transfer as a mere production technique – or an instructional and learning technique involving carrying over surface patterns from one language into the other (cf. Ard and Homburg 1983 p.175).

Instead, transfer is presented as “a way of thinking, perceiving and processing information”, and even a “neurocognitive mechanism” that can be equated and connected with a whole row of other phenomena, such as mental abstraction, analogical reasoning, classification, generalization, induction, logical inference, and metaphor (Haskell 2001 p.26). Indeed, Vosniadou and Ortony (1989) speak of the same in their discussion of analogical reasoning, where information is transferred from a source or base domain, the one that exists in consciousness or memory, to the target domains, the ones in need of explanation (p.7).

As such, transfer is deemed crucial for categorization and concept formation, and with this, our understanding of the world (Haskell 2001 p.25, Vosniadou and Ortony 1989 p.1).

Moreover, transfer has a desirable effect in mnemonics. For this, it has been termed, somewhat negatively, a “parasitic learning strategy” (Ecke 2001 p.92). If people notice essential similarity between various concepts, “they can “chunk” them into one concept and thus ease the load on memory” (Haskell 2001 p.34). Moreover, transfer of learning is in general credited as being “extremely economical in terms of an individual’s learning resources” since “it ... helps us to efficiently store, remember, integrate, process, and retrieve information” (ibid.)

The same effect is reported, quite independently, by linguists: “After meeting a word that is formally and semantically similar to the L1 word, the learner does not need to expend much effort on storing it in his mental lexicon. What is needed is merely a mental note ‘this word in a similar form works in L2, too.’” (Ringbom 2006 p.9). This allows for a reasonably good receptive knowledge of a related language after a short time (ibid. p.99). While unreflected practice yields poor results, the efficiency of transfer can be such that “some people learn formal rules and acquire mental schemas ... without a great deal of repeated practice, often with one example being sufficient” (Haskell 2001 p.180). Haastrup (1991) also reports that words acquired through inferencing, in conjunction with valid feedback, are retained better than words in formal instruction (cited in Ringbom 2006 p.106). Wertheimer and Kofka (1940) distinguish in a similar fashion between *senseless* and *meaningful* learning, claiming that repetition and drills give much worse end results than aware learning, where few examples are enough to develop competence (cited in Singley and Anderson 1989 p.9)

Nevertheless, the term “transfer” has been seen as a problematic one by some linguists.

2.2 Transfer and interplay of languages

In linguistics, the term “transfer” has been sharply criticized as too restrictive in discussion of the effect of prior language knowledge, and many researchers prefer to speak of cross-linguistic influence (CLI) instead. Kellerman and Smith (1986) hold that the traditional associations evoked by the term prevent it from being applied to less obvious effects in the interplay of languages, such as avoidance, or various lengths of time expended on acquisition of grammatical structures (p.1). CLI, on the other hand, “subsume[s]”, according to them, “under one heading such phenomena as ‘transfer’, ‘interference’, ‘avoidance’, ‘borrowing’, and L2-related aspects of language loss ...” (ibid.) This opinion is echoed in a moderately recent work by De Angelis and Selinker (2001), who

treat CLI as “a super-ordinate term, thus including instances of native language transfer, interlanguage transfer, avoidance due to influence of another system, and even ‘reverse transfer’ from an interlanguage back into a native language” (p.42).

In the present paper, however, the term “transfer” is used, with no intention of evoking negative associations. There are two main reasons for that. On the one hand, the definition of CLI is deemed too broad, and all of implicated phenomena cannot be accounted for within the limits of one paper. On the other hand, the author of the present research seeks to re-establish the link between transfer of learning in general and its special case, the use of previous linguistic knowledge in the comprehension of a new language. For both processes, noticing and establishing similarities is crucial.

A few additional views and definitions of transfer need to be cited, as it is problematic to account for all of its implications in the space of a few lines.

Odlin (1989) starts by defining what transfer is not: not habit formation, not interference, not native language compensation, not production strategy, nor is it limited to L1 influence (pp.25-27). After this only does he arrive at the definition that reads: “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” (p.27). A reservation is made that in order to fully understand the nature of linguistic transfer, one would have to fully comprehend the nature of language and provide the corresponding definition (ibid. p.28).

Ringbom (2006) sees transfer as employing cross-linguistic similarities in comprehension and, to a lesser degree, in production during the communication process (p.26). However, despite such delimitation, his findings correspond well to general findings in studies of transfer of learning.

Contrarily to Odlin (1989), De Angelis and Selinker (2001) advocate transfer of items as a production strategy explained either by insufficient knowledge or total lack thereof. This leads students to using words from all available languages as a compensation mechanism (p.50).

There are many ways of classifying various instances of transfer, which cannot all be discussed here due to the space limits. Yet since transfer is commonly divided into lateral (same complexity) and vertical (complexity increases with the growing level of abstraction), it should be mentioned that transfer in language learning is usually assigned to the lateral kind (Singley and Anderson 1989 p.16). The more complex, vertical transfer is also called far transfer, and only “good” students are found capable of it (ibid. p.18).

It should be said that not all scientists agree that cross-linguistic influence is a special case of transfer of learning. Wode (1989), for example, speaks of “linguo-cognitive capacities”, by which he assigns language processing to a category of its own: “... the cognitive capacities enabling human beings to process language data very likely constitute a special type of cognition *not to be equated with general intelligence, concept formation or the ability to think logically*. It seems that the ability to handle the formal properties of linguistic devices used in natural languages constitutes a specific type of cognition especially geared for this purpose” (p.182, italics added). Yet as this claim is only substantiated by reference to Chomsky and Wode’s own previous works, it appears insufficient.

A similar view is nevertheless shared by modularists. Gardner (1983), for example, states that “there are different modules for mathematics, language, arts, athletics, and other skills” and therefore skills from one area cannot be easily transferred into another (cited in Haskell 2001 p.198). While this is at least partially true, Happel and Murre (1994) believe, on the other hand, that “the structure of the brain has evolved to capture as many regularities of the human environment as possible and shows how neural structures not only allow for rapid and efficient learning, but also enable system to generalize its learned behavior to new instances” (qtd in Haskell 2001 p.191). This behavior is not limited to any module but extends over the whole range of phenomena, just as linguistic transfer is not limited to phonology, lexis or grammar, but extends over all subsystems (Odlin 1989 p.23).

2.3 Surface and deep transfer and their occurrence

It has been mentioned above that there are different ways of classifying transfer. The most widespread distinction is one between surface transfer (transfer occurs only if there are many easily noticeable surface similarities between two concepts) and far transfer (transfer is made possible by a large knowledge base and a deeper understanding of the underlying structure) (cf. e.g. Singley and Anderson 1989 p.22). While surface transfer is quite easily achievable, it is deep transfer that is sought after, since it provides the best effect in education.

However, far transfer occurs comparatively rarely, is often assigned to advanced or particularly capable students and is hard to condition in instructional settings. The learners' concentration on surface elements is understandable. Haskell (2001) explains that such concentration owes to the possible "positive correlation between surface similarity and deep similarity" (p.195). This viewpoint is echoed in Ringbom's (2006) work, where he states that "in lexis, formal similarity to an existing L1 word is perceived first, in that getting the word form precedes getting the word meaning. If formal similarity can be established, it provides the basis for a subsequent assumption of an associated translation equivalence" (p.9). Vosniadou and Ortony (1989), too, call surface similarity "an important determinant of access" (p.9)

Additionally, Vosniadou and Ortony (1989) claim that the problem most often lies not in the lack of competence necessary to find solution to a problem, but rather in that a "solver cannot recruit that knowledge as and when it is needed" (p.13). Therefore, they see the aim of instruction in liberating what they term "'inert' knowledge" (ibid). Singley and Anderson (1989) also notice that "just having knowledge that logically implies a solution to a task is not enough. One must learn how to apply solution to the task in specific situations" (p.2). Kellerman and Smith (1986), too, cite studies showing that "structural identity is not a sufficient condition for transfer to occur" (p.2).

Language learning, as has been mentioned above, has been called a case of lateral transfer. This might lead one to expect that most students will be open to transfer and see similarities. However, such view might well be simplified: after all, as has been said above, the present work prefers to see transfer as more than an instructional and learning technique, where surface patterns are carried over from one language into the other. Can a familiar language, acquired on a rather high level, really be equated with a new and unfamiliar one in terms of complexity? The perception of their difficulty is likely to differ, and therefore, expecting to demonstrate high level of transfer is optimistic. In any case, it is valuable to remember that in previous research, "transfer experiments, more frequently than not, don't in fact show transfer" (Haskell 2001 p.36).

2.4 Vital theoretical positions for the present research

The matters of objective and perceived similarity, frequency and prototypicality are often brought up in discussions relating to similarity judgements. The positions taken in the present paper are delineated below.

2.4.1 Objective and perceived similarity

A commonly acknowledged problem is that the similarity perceived by the students does not necessarily correspond well to the objective similarity as established by scientists (Ellegård 1976 p.195, Odlin 1989 p.141, Lado 1957 p.91, Haskell 2001 p.30,51,53,119). Perceived similarity is hard both to elucidate and to define due to individual variation among learners, who recognize similarities and make similarity judgements in many different ways.

Already Lado (1957) remarks that "the border between what is similar and what is different is admittedly a fuzzy one, and we must expect some discrepancy if two investigators classify the words without consulting each other" (p.91). He believes that consensus between linguists can be reached through discussion and collaboration, but does not take into account students' perceptions and opinions. Yet since similarity judgements are dependent on people's representation of entities, the nature of representations ought not to be left without consideration (cf. Vosniadou and Ortony 1989 p.5, Singley and Anderson 1989 p.9)

Further fine distinctions are introduced. Ringbom (2006) distinguishes between *perceived* similarity, where form and function in words from different languages approximate each other, and *assumed* similarity, which is presupposing similarity before contact with language (with that, it often results in deceptive cognates) (p.26, p.117). Haskell (2001) sets apart *sensation*, registering of the stimuli, and *perception*, interpretation of such sensation (p.123). Neisser (1967) emphasizes that perception should be seen as a *process in the subject*, with less weight given to the external stimuli (p.120). Eich (1995) asserts, in a similar fashion, that the information will transfer better in environments that *feel* similar rather than *look* similar (cited in Haskell p.126)

Thus, even if the objective measurement of similarity of two languages were possible, it would probably still be inapplicable. Close distance between two languages only plays a role if students perceive this similarity (cf. Odlin 1989 p.141). The existence of concrete, objective similarity alone will not result in transfer (cf. Allport 1960 cited in Haskell 2001 p.120; cf. 2.3).

Another accepted stance is that objective similarity is symmetric, while perceived similarity is not (Ellegård 1976 p.195, Ringbom 2006 p.7, Tversky 1977 p.328). Besides, perceived similarity is not fixed: it varies depending on the context and with the changes in the knowledge base (cf. Haskell 2001 p.102). A further discussion of symmetry/context follows in section 2.5.3.

To use Haskell's words, "how we are able to say that X is *similar* or the *same* as Y, or that *this* is like *that*, is a mystery" (2001 p.189). Yet the results of such statements can be elicited and analysed, which is the purpose of the study.

2.4.2 Frequency

Frequency of occurrence is undoubtedly very important; it should be and has been considered in the selection of the items for the test. Lado (1957) emphasizes the importance of frequency on several occasions (p.88-91). Ellegård (1976) states that similarities between everyday words "count more" than similarities between infrequent words (p.196). Vosniadou (1989) elaborates on the fact that similarity between frequent concepts is more salient than between infrequent ones, i.e. the former are more easily retrievable (p.5). In tachistoscopic studies, familiarity with a presented item is shown to result in much shorter recognition times. This illustrates the connection between frequency and recognition/performance (Neisser 1967 p.116).

However, psychologists have found that it is common for people to give exceedingly high weight to single occurrences in their judgements: "In terms of reasoning from base rates (i.e., on the probability of an event being true based on its actual frequency of occurrence), instead we often reason with a single instance" (Haskell 2001 p.59). This should be considered in the analysis of results.

Needless to say, personal experience that people rely on normally varies from the objective reality. Thus, Kellerman (1986), who asked his subjects to mark the frequency of word senses so as to test transfer between Dutch and English, has found it impossible to determine whether they indicate how often they have encountered the words themselves ("experienced frequency of linguistic occurrence") or the objects designated by the words (p.44).

One of the ways of explaining overreliance on a single occurrence and violating principles of probability and statistical theory is by reference to prototypicality. That is, in order to determine whether an object belongs to some class, a person calculates the similarity that an object possesses to the prototype of the class (Vosniadou and Ortony 1989 p.6). Such definition of prototype is quite close to that of a stereotype. In the present paper, the notion of prototypicality is used in a different sense.

2.4.3 Prototypicality

Kellerman (1986) describes the prototypical sense of a word as its main and most frequent meaning with respect to objective frequency, native speakers' and learners' semantic space⁵, and familiarity

⁵ By which Kellerman understands various possible related senses of a word known to native speakers and learners respectively (ibid.)

(p.37). Kellerman's aim is to establish and attempt to predict transferability, and he finds that "a sense which is in everyday use to denote some common object should, *ceteris paribus*, be viewed as more transferable than one which refers to some esoteric object" (p.39).

Determining such general meaning suitable to a maximum variety of contexts is a common task in lexicography, where it is called "quasiprototypical" (Gellerstam 2004 p.111). Gellerstam (2004) describes the following dilemma: while lexicographer tries to provide general information, suited to most contexts, the user requires a translation of the entry in a specific context⁶ (p.112).

Salkie (2002) also describes the implications of such general dictionary sense for translation equivalence. He finds that in practice, most words are translated with equivalents not present in dictionaries (translationally ambiguous (p.53)), and there are whole groups of words translated with a new equivalent virtually in every new context, since it is context that contributes to the sense (translationally vague (p.54)).

To help find translation solutions, Salkie (2002) proposes to explore what he calls "modulations of the sense": "different ways of viewing the same situation" (p.67). He searches for underlying meanings that a word could possess. For example, the modulations of sense for the German word "kaum" in English could be "zero, small quantity, negative, almost zero, almost not, mostly not" (ibid.). This approach is one particularly interesting for the purposes of current paper.

Here, "prototypical meaning" is used to denote not the main, most frequent and optimally general meaning of the word, but such common underlying sense as can be elicited by modulations of meaning. If some modulations of meaning of words in a word pair coincide, then it is considered that their prototypical meaning coincides.

This is important, as those who propose teaching for transfer on all levels of education consider the challenge to be to "develop mental models of the underlying structure" (Haskell 2001 p.24).

2.5 Previous research

Three works have been of particular importance and have served as an inspiration for the present research: Ard and Homburg's verification of mother-tongue effects in acquisition of English by speakers of Spanish and Arabic, Ellegård's proposition for the model of objective language similarity, and Tversky's article on measuring similarities in terms of features. A short overview of these articles and the way they helped shape the present enquiry follows below.

2.5.1 Ard and Homburg (1983)

Ard and Homburg (1983) measured and verified the influence of mother tongue in acquisition of English vocabulary by Spanish-speaking and Arabic-speaking subjects (p.157). In their experiment, they used a part of a standard test of English proficiency (Michigan Test of ELP), in the form of a multiple choice task including selecting a synonym and fill-in-the-blank questions. All vocabulary test items were analysed, and not just the cases where transfer could be expected to occur.

Consequently, the following claims were made to support the aptitude of the study: 1) an identical task was performed by a large number of subjects, 2) there was little possibility of avoidance, in contrast to production tasks, and 3) elimination of experimenter's bias was achieved by using a standard test.

The results clearly point at mother-tongue influence even in case of unrelated languages. Yet speakers of Spanish had a head start over the speakers of Arabic, even though later the learning speed was comparable between both groups (p.162)

However, some positions taken by Ard and Homburg are here felt to be not entirely satisfactory. For example, the measure of formal similarity of words is rather subjective: it has been determined by asking Spanish-speaking students at the Michigan University "to give any similar Spanish words to any of the 181 relevant words" (p.164). In the present paper, a string matching

⁶ Neisser (1967) asks, in a similar vein, "What roles do the meanings (in a dictionary sense) of individual words play when we grasp the meaning of a paragraph?" (p.136)

algorithm is used in addition so as to provide an unintuitive yet objective measure. The limitations of such method are accounted for below (3.4.4). Still, one of its advantages is that it allows no preconceived notions about whether or not the students are aware of the similar morphemes across languages, whereas Ard and Homburg make the assumption they are.

Furthermore, semantic similarity in Ard and Homburg's study has been derived by looking up the meanings in a monolingual Spanish dictionary. There is a certain necessary bias in dictionaries (see 2.3.3), and the corpus data was probably not taken in consideration, judging from the time of dictionary publication. Thus, the meanings are somewhat biased. While they served Ard and Homburg's purpose, in the current enquiry, no single, "correct" meaning is proposed, but a similarity the author would expect, and the motivation for it (Appendix 1). Where space limitations allow, other possible explanations are provided to illustrate how similarities can be perceived (4.2).

2.5.2 Ellegård (1976)

A fascinating study attempting to calculate the similarity index between two languages is one by Ellegård (1976). He proposes a model of languages – Lingo – to arrive at the objective measure of similarity and "abstract learnability".

In such a model, all words are 4 letters long and there are 32 letters in the alphabet; thus, the effort of memorizing a word equals to 20 bits in the English Lingo. Grammatical information, such as, e.g., gender or plural formation in Swedish, contributes another three bits to Swedish Lingo words, while formal similarity is taken to be 25%. This yields the cost of abstract learnability of Swedish from English at 18 bits, and the similarity index between these two languages of 23%: this means these languages are 23% identical and 77% have to be learnt from the scratch.

Ellegård then proceeds to calculate the cost of learning vocabulary and grammar rules in samples of various sizes, coming to the conclusion that grammatical information is exhausted more quickly than lexical. It provides proof for the fact that most rules are learnt more quickly than most words. Estimations are also made for language models with similar high-frequency and similar low-frequency words.

However, Ellegård himself finds similarity index problematic, and proposes a difference index in the second half of the paper. This index is mathematically more advanced, yet corresponds less well to the psychological realities, since it is reported that learners see either similarity or absence thereof, rather than concentrate on differences (Ringbom 2006 p.118).

Ellegård calculates the cost in bits for each letter by which a word in one language differs from the other, which is comparable to the Levenshtein distance, used in the present paper.

Ellegård's study has limitations. While a rigid mathematical model was proposed, intuitive assessments were made as the discussion progressed. This is justified by the aim, namely, that the procedure for measuring similarity across languages was to be introduced.

Yet the main counterargument could be that people do not think in bits. Neisser (1967) is critical of information science of his time: "... the upshot of more than a decade of research is that informational measures have little or no direct relevance to performance in most cases" (pp.111-112). And even if the data were directly applicable, it has been suggested that "using the detailed computational research findings on how the mind works may not be the best data for designing effective instructional methods" (Haskell 2001 p.51).

Including grammatical information in the learning of lexical items is here considered as one of the main merits of Ellegård's study. In the form used to elicit data for the present paper, items are included that are very close semantically, but with varying grammatical meaning, to see how grammatical meaning is incorporated into lexical items from a practical study rather than theoretic supposition.

Yet in speaking of an objective measure of similarity between languages, no progress has been made: "... Just how similar something is to another thing is largely a subjective matter, and there is no simple way to determine how quantitatively similar something X is to another something Y" (Haskell 2001 p.30). However, observations of data on how such judgements are made is

important, according to Kellerman (1986), “if certain research questions are even to be formulated, let alone answered” (p.35).

2.5.3 Tversky (1977)

An extensive overview of various similarity judgement tests is found in Tversky’s 1977 paper.

Tversky (1977) presents methods that employ metric measures of similarity and delineates their drawbacks. Instead, he advocates measurement in terms of features. One of his main claims is that similarity should be measured on the basis of both common and distinctive attributes that the objects possess. With this, he advocates the approach that measures weighted difference of common and distinctive features, since similarity and dissimilarity are not complementary: if two tested items are 80% similar, it does not mean that they are $100-80=20\%$ dissimilar. This should be thought of in analysis of the Part I of the form.

There are two assertions in Tversky’s paper that are valuable for the present research.

One is that similarity judgements are normally directional, which renders them asymmetrical, in contrast to mathematical values. “Something is like something else” (directional) is not the same thing as “Something and something else are alike” (non-directional) (cf.p.333). In directional judgements, the more salient stimuli act as referents while the less salient ones are the subjects (p.328). E.g., says Tversky, the statement that “North Korea is like China” makes sense, while the reverse one does not (pp.328,333). Consequently, it is believed by the author of the present paper that the students filling in the form will likely see the (unknown) Swedish word as the subject and the English word as a referent. However, to test this, the sentences are presented in different order (see below, section 3.4.8). It could also be that lexical similarity judgements are non-directional.

Another valuable position is that “similarity depends on context and frame of reference” (p.340). This argument has served as one of the reasons that have led the author of this research to choose the form format with example sentences, so that the meanings could be inferred from the surrounding context.

Tversky summarizes that “changes in context or frame of reference correspond to changes in the measure of feature space” (ibid.) This is a natural result of people’s tendency to categorize objects - or “sort them into clusters” (cf. Haskell 2001 p.34). Therefore, unsurprisingly, many studies have established that “addition or deletion of objects can alter the clustering of the remaining objects” (p. 342, cf. also Haskell 2001 p.145). Similarity between objects is greater in broader, extended context than it is in the original one (p. 344). Thus, the selection of example sentences for the form used in the present research can be detrimental to the obtained similarity judgements, and this should be kept in mind in the analysis of the results.

Additionally, it is important to note that Tversky has found what he calls “natural, integral stimuli” (people, countries, sounds, etc) to be non-ambiguous where evaluation of similarity is concerned, while in case with the “artificial, separable stimuli” the subjects “occasionally tend to evaluate similarity with respect to one factor or the other” (p.340). This claim is essentially the same as one by Kellerman (1986) (cited in 2.4.2) and can be reiterated, though in a different light, in the present study. It is hard, if at all possible, to determine in terms of which features, experiences and views the similarity judgements are made.

Tversky has been criticized, along with a few others, by Rips (1986) for the role Tversky assigns to people’s representation of similar items in terms of belonging to categories. Rips shows that similarity does not always lead to categorizations, nor are all categorizations based on similarity of items in the category (p.23). Although Rips’s disapproval is just of oversimplified approaches to similarity judgements, his counterargument would be more convincing were the distinction between deep and surface similarities treated more carefully (p.50).

What Rips’s article does clearly and convincingly demonstrate is that human mind is a powerful tool, armed with different ways of thinking of and looking at phenomena – something that will be mentioned in this paper in the discussion part.

3. Method and materials

In this part, the justification for the focus on the comprehension of a written text is provided, and the instrument is described with respect to design, content, aim, limitations and subjects.

3.1 Comprehension vs production

A distinction should be made between the knowledge that a subject possesses, or subject's competence, and how this knowledge finds expression, i.e. production. Production involves real-time processing and requires control over knowledge. The implication of such a division is that a subject can, for example, perform without competence, using prefabricated chunks of words without understanding grammar behind them, or have competence without performance, i.e. understand a language but be unable to speak it. Therefore, production data does not fully account for actual knowledge (competence) (Smith 1986 pp.10-14).

Since the current experiment is conducted with beginners, comprehension is favoured over production, particularly as cues are available from context and/or previous linguistic knowledge. Approximate comprehension requires less understanding of phonological, grammatical and lexical systems than even imperfect production does (Ringbom 2006 p.21). Besides, the ability to produce requires comprehension to occur first, in most cases (ibid.).

In addition, it is reported that such division is hardwired into the structure of human brain, different sections of which are responsible for language comprehension and language processing (Haskell 2001 p.162).

Therefore, in the present study, the emphasis is placed on comprehension and comprehension tasks rather than production.

3.2 Formal similarity: sound or written form?

What exactly is meant by "formal similarity" is ambiguous, since it is treated differently by various researchers. The stance taken on the interpretation of this term probably depends on whether a scientist considers written or spoken language to be primary, an issue that does not have a simple resolution even in languages where spoken and written versions are uniform and standardized.

Lado (1957) sees the pronunciation, the spoken form of the word as important, a view that arises from the very definition: "In most languages the form of words consists of sound segments, stress, and, in tone languages ... pitch" (p.76). Thus, the acoustic characteristics are the primary, if not the sole constituent of the word form, as is endorsed by saying that "References to form are to the sounds of the words, not to the spelling" (Lado 1957 p.82).

As a consequence of such view, form cannot be seen as something set, static or definite: it "varies according to the formality of the situation, speed of talk, position in the sentence, position as to stress, etc." (Lado 1957 p.76). In this definition, variations between different grammatical forms are left uncommented: is a definite form of a Swedish word to be considered a variation of the indefinite, or is it a new form that is subject to similar constraints (formality, speed, etc)?

In addition, Lado (1957) provides explicit instructions as to how similarity ought to be established: "... [a teacher] can go through his vocabulary sample in the foreign language, *reading aloud each word*, and deciding fairly quickly whether it resembles a native language word or not" (Lado 1957 p.90, italics added).

Present-day researchers tend to think of spelling as an important constituent of formal characteristics, as transpires from the following quote: "One special problem in pronunciation concerns such cognates as are formally similar (in writing often even identical) but are pronounced differently in L1 and L2. Even very advanced learners of related languages frequently go wrong in pronouncing such words" (Ringbom 2006 p.63).

Certainly, the complicated spelling rules of the English language explain why "formal similarity" is understood as "phonetically similar". However, ample evidence in recent works shows that "perceived lexical similarities do not affect listening as much as they affect reading" for a variety of reasons (Ringbom 2006 p.59):

1. The identification of a single word in a flow of speech poses a serious problem for learners who are “frequently uncertain where a word begins and where it ends” (Ringbom 2006 p.58). Saying aloud a single word would be quite distant from the real speech situation, while meeting a word in a text and concentrating on it to try and make sense of it using previous knowledge and context is viable.

2. The learner may be more familiar with the written form of a word than its spoken form. This can be expected to be particularly true if the language has been acquired as a result of formal instruction that tends to be focused on writing. In such cases, the reason Ard and Homburg (1983) use as a motivation for their test format is valid for the present paper as well: as a researcher, one cannot know how the subjects of one’s study would pronounce the words, were they to see them in a written text (cf. p.165).

This is obvious in case of Swedish, where the spelling is much closer to the actual pronunciation than in English, yet some historically motivated irregularities are nevertheless present. For example, one may suppose that words like “hjärta” [ʔj’är_t:a] and “heart” (50% formally similar as measured with Levenshtein distance), or “djup” [ju:p] and “deep” (also 50% formally similar (LD)) can be seen as alike in writing, and some beginner learners might not drop initial consonant in pronunciation as they should. The same applies to the softening of word-initial *g-*, *k-*, *sk-*: “gäst” pronounced with hard [g] is more similar to “guest” than the correct [jes:t] (see also Utgof 2006 p.18-19,p.25). Thus, written form (and incorrect pronunciation) of Swedish words may actually be closer to English than correctly pronounced items. There are a few examples of the reverse as well, yet they are less numerous.

3. There is more time at one’s disposal when reading than while listening. In listening, one has to follow the speaker, however quickly that one may choose to speak. In reading, it is possible to decide for oneself how long time to spend on figuring out the meaning of a word. Thus, the likelihood of inferring the sense a word in writing is much higher than in listening due to the time constraints (cf. Ringbom 2006 pp.58-59).

Finally, while phonetic similarity may appear quite easy to establish to laymen, it could pose even greater trouble in measuring to a phonetician than the likeness of written words does in the present paper. In phonetics, allophones of single phonemes are distinguished within one language, not to mention individual variations; the differences between sounds systems across two languages would probably be overwhelming, and suitable level of abstraction difficult to establish.

To Odlin (1989), form is “some definite pattern” inherent to a structure. No specific reference is made to either sound or spelling (p.31). And since both written and spoken language is in use by those who speak both English and Swedish, either as L1 or L2, there is no way of separating sound or written form or calling one of them more important or primary. In the present research, however, the focus will principally be on spelling, as one of the questions posed is how students with a working knowledge of English are able to see similarities between their previous linguistic knowledge (i.e. English) and the language of the new environment (i.e. Swedish) when faced with a sign, a newspaper or a book.

Therefore, the focus is placed on reading comprehension and written form rather than production and similarly pronounced words.

3.3 Subjects

The data comes from international students who have chosen to study a non-obligatory course in Swedish at Linköping University. The language of instruction is English. During the fall term 2008, there were 8 such groups studying at Level I (7 of which were active in Linköping and 1 in Norrköping⁷) and 2 groups studying at Level II. Each group comprised approximately 20-25 students in total. Both of the Level II groups and 4 of the Level I groups were selected for the present study.

⁷ Linköping University has three campuses, two of which are situated in Linköping and one in Norrköping, located 40 kms away.

3.3.1 Level I vs Level II

A comparison between beginners and more advanced learners is particularly interesting, since it has been indicated by many researchers that it is beginners that benefit most from similarities, particularly in comprehension (as reviewed above, section 2.2): "... from the very beginning learners profit from similarities they perceive, especially formal similarities, which help them to establish cross-linguistic equivalences" (Ringbom 2006 p.92). As the competence increases, on the other hand, the initial similarity hypotheses decrease in significance: "... cross-linguistic lexical similarity clearly seems to be less important during the later stages than during the earlier stages of learning" (Ringbom 2006 p.92,p.93).

On the other hand, one should not forget that a minimal competence has to be established before any transfer can begin to occur: "At the initial stages of third or additional language acquisition, a learner may perceive his/her own competence to be too low to be willing to risk incorporating previous linguistic knowledge regardless of language distance" (De Angelis and Selinker 2001 p.56).

Vosniadou and Ortony (1989), on the other hand, express the concern that independently and imperfectly established similarities at early stages may hinder more perfect understanding later on (p.13).

3.4 Instrument

In this section, the instrument used for the practical part of the paper is described. Justifications are provided for the format and the selection of items with respect to aims is explained in detail. Limitations of the study are accounted for and an attempt is made to answer some of the possible questions. Finally, the computational method used to measure formal similarity is presented and the philosophical problem pertinent to task formulation is accounted for.

3.4.1 Considerations in form design: importance of context

An important point of departure in design of the form testing similarity judgement and perception is that "similarity depends on context and frame of reference" (Tversky 1977 p.340, see 2.5.3). This argument, among others, has led the author to choose the format with example sentences, which allows the meanings to be inferred from the surrounding context. The students are notified, however, that "the sentences are provided to show how these words may be used" (see Appendix 1), which means that they ought to consider other possible occurrences as well.

Neisser (1967) reports, similarly, that "the importance of set and context on the perception of words [at short exposures] has been demonstrated in a great many experiments" and defines two fundamental ways of how it happens: it either "predispose[s] the subject to construct one visual figure rather than another" – see what he or she expects to see – or make an interpretation of something if he or she saw something unacceptable as answer – i.e. say what he or she thinks ought to be said (p.116). This should be considered in analysis of Part I of the form.

As some researchers have noted, the meanings of some words can be highly context-dependent: "... many meanings are difficult to specify without considering co-occurrence phenomena in the linguistic context" (Altenberg 2002 p.26). Perhaps, they cannot be defined outside the context at all: "the meaning of a lexical item (its paradigmatic status) can only be determined on the basis of the context in which it occurs (its syntagmatic status)" (ibid. p.27).

The wealth of meanings is well-known to translators and lexicographers, who sometimes encounter words, for which a generic description or translation is virtually impossible. No list of all possible meanings in different contexts could be sufficient, either, as "it is the contexts rather than the word which are doing most of the work" (Salkie 2002 p.64).

3.4.2 Selection of items

A frequency list of words in Swedish Umeå Corpus was generated, where all words with the minimum frequency of 3 or more were present. The first 2000 entries were skimmed manually and

the Swedish high-frequency lexical items formally similar to English ones were noted down. These items were checked against the vocabulary list found in the student book used in the instruction of the Level I students (Rehnqvist 2007).

Two considerations were important in selection of word pairs to be subjected to similarity judgements. On the one hand, it was hoped that the students would rely on their intuition and context in deciding the similarity of word pairs. Since many of the high-frequency items were present in the vocabulary list in the student book used in the course, these items were expected to be known to students, in which case there was a risk the students would rely too much on what they have just learnt. They might then compare the sense of the word with a learnt “dictionary” meaning rather than assess it with respect to the given situation. Therefore, the lower frequency items not present in the vocabulary list were prioritized. Besides, low frequency items were included if they fit one of the criteria mentioned below.

On the other hand, it was not the intention to present the students – particularly beginners – with a large quantity of unfamiliar data. Thus, some of familiar items were included despite the first consideration. The students were informed that they did not have to understand the whole sentence, or all the words in the sentence, to make a similarity judgement for research items (underlined).

As international words are similar across many languages, most of them were excluded from the study.

3.4.3 Criteria

The word pairs were selected so that one or more of the following criteria would be satisfied:

- Same word class, similar meaning, e.g. *ofta* – *often*
- Different word classes, similar meaning, e.g. *drömma* – *dream*, *mörkret* – *murky*
- Same origin (Proto-Indo-European, Proto-Germanic, Romance loan)
- Superordinate/subordinate relations, e.g. *mat* – *meat*, *djur* – *deer*
- Nearly identical in all respects, e.g. *folk*
- Nearly identical in form and meaning, yet different in use (functionally), e.g. *glad*
- Similar cognate, with a competing synonym, e.g. *falla* – *fall* (*ramla*), *frisk* – *fresh* (*färsk*)
- Nearly identical written form, difference in pronunciation, e.g. *station*, *grav* – *grave*
- High-frequency word in Swedish, matched by a low-frequency cognate in English, e.g. *behöva* – *behoves*, *mörk* – *murk*
- Important differences yet similar or same underlying prototypical meaning, e.g. *dyr* – *dear*, *tät* – *tight*, *bära* – *bear*
- Rather distant written form, e.g. *värd* – *worth*
- Deceptive cognates (“false friends”), e.g. *offer*, *aktuell* – *actual*
- Sound-imitative word with a non-sound-imitative homonym, e.g. *pipa* – *peep*
- Compounds from components, presumably to be known to subjects, e.g. *ögonblick*

Some of the word pairs include words from different word classes, with different degrees of difficulty in arriving at the initial form. While Lado’s claim that “words that may not be used as verbs in the foreign language will constitute problems if they can be so used in the native language” (1957 p.91) is hard to argue with where production is concerned, it is assumed that these words can still be helpful in inferring the meaning in comprehension. After all, Lado (1957) himself makes the distinction between “lexical” and “grammatical” (morphological, syntactic) meanings (p.78), and lexical meanings may be close where grammatical meanings are distinct.

E.g., the noun “murk” can be a synonym of “darkness” and the adjective “mörk” means “dark”. Their formal similarity is 75% (LD), and even though they belong to different word classes, seeing the collocation “mörk choklad” may make one think of “dark chocolate” by association to “murk”. This would be consistent with Haskell’s (2001) assertion that “peripheral or oblique knowledge often provides important links to a primary area of knowledge” (p.46).

The expected similarity ratings for word pairs, from the point of view of the author as a language learner, a linguist and a hypothetical teacher, are listed alongside the formal similarity

measures in Appendix 2. In part 4, section 4.3, the students' answers are analysed against these expected similarity ratings.

3.4.4 Limitations

Certainly, like all constructed tests, the form used in the present study bears the same fault as mentioned by Ringbom (2006): "... the disadvantage of vocabulary tests is that the words tested are chosen by the tester, not by the learners themselves" (p.85). Yet since the current aim is not to show that previous linguistic knowledge will be useful, but rather to elicit data as to how similarities the students may encounter are seen in relation to their previous linguistic knowledge, it is hoped that the form design serves the aim of the study.

3.4.5 Informed vs non-informed guesses?

No overview of study materials could be possible in case with Level II students. One could, of course, assume that many of the items could possibly be familiar to Level II students. If so, one might wonder why no option to distinguish between informed judgement and guesses has been introduced in the form.

However, if we bear in mind how meaning varies depending on context, it will become obvious that there is really no clear-cut boundary between knowledge and guessing. As Michalski (1989) has put it: "One knows what one remembers, or what one can infer from what one remembers within a certain time constraint" (p.122). Moreover, as the aim was to approximate testing of competence, not production (see 3.1), it was important to emphasise that the aim was not to test how well the students had learnt their vocabulary, as in a typical test, but what their intuition said – what they could infer from previous knowledge and context. Rather than give "correct" answers, they were encouraged to guess.

From a practical consideration, inclusion of any extra option would take up the precious space and make the form visually "heavier".

3.4.6 Example sentences

The example sentences originate from the British National Corpus and newspaper and fiction corpora from Språkbankens Konkordans.

For the English sentences, the preference was given to British National Corpus among other English language corpora, since it is an exemplary representative balanced corpus, used in many previous studies⁸.

The Swedish sentences originate from the archive of the broadsheet Göteborgs-Posten and fiction printed by Bonnier publishing company. It has been chosen for ease of access and size on the one hand. On the other hand, its content is appropriate, since the matter of interest is how sense is made of signs, newspapers and books in a new language, with less focus on more advanced literature.

The size of the corpora is indicated in the table below. The sentences were skimmed and chosen at random. Some of them include other formally similar lexical items besides the ones tested for similarity, partly for the sake of ease of inference (Appendix 1). Some sentences have been edited for length to fit in the form.

Table 1. Corpora used for the extraction of example sentences in Swedish⁹

Corpus used	Tokens	Types	Corpus used	Tokens	Types
2001 Göteborg-Posten	15 257 883	484 737	2004 Göteborg-Posten	19 406 813	597 056
2002 Göteborg-Posten	18 434 005	531 331	Bonniersromaner I (1976/77)	5 626 348	156 883
2003 Göteborg-Posten	16 663 701	508 523	Bonniersromaner II (1980/81)	3 715 690	155 380

⁸ As accounted for below (4.2) some items have nevertheless caused a minor confusion and scepticism in some subjects, including a native speaker of English from Australia.

⁹ No statistical test to establish that frequency of occurrence was comparable in BNC and Språkbankens Konkordans corpora has been made.

3.4.7 Why not a parallel corpus?

The preference has not been given to a translation corpus of English and Swedish for three main reasons. First, it would make inclusion of deceptive cognates and words with a low similarity value impossible, since obviously, a qualified translation would not involve such cases. Second, the effects of translationese could be present in such a corpus, particularly in the direction English-Swedish, perhaps rendering the sentences un-Swedish and more English-like (cf. Gellerstam 1989), while the real-life Swedish data was required. Third, it is problematic to find and gain access to a sufficiently large corpus, which would provide many examples of word pairs to choose from.

3.4.8 Form description

The form comprises three parts, which are briefly described below. The form itself can be found in Appendix 1.

Part I comprises 26 word pairs with example sentences in English and Swedish. The order of the sentences varies between alpha and beta versions: in alpha, all odd sentence pairs start with a Swedish example followed by an English example and all even sentence pairs start with English followed by Swedish. In beta, the order is reversed. It is done to test the assumption that less salient Swedish words will act as subjects and more salient English words as referents (see section 2.2.3).

Part II consists of 13 multiple choice questions. The students are presented with a Swedish sentence, in which one word is underlined, and are asked to choose from 4 alternatives an English word to reflect what they think it means.

The “wrong” choices have been constructed by the author. They are either formally similar (e.g. II-4 *vapen-vapour*), and/or belong to a wrong word class (e.g. II-5: *vinner-vain*), and/or could suit into context (e.g., II-7: “blek vintersol” – “cold”, “bleak”, and “bright”).

In this way, a hypothesis that the students tend to assume semantic similarity when encountered with formally similar words is tested. However, language proficiency also transpires from it. E.g., in item 13 in Part II, the students are not supposed to confuse “lead” with “lid”¹⁰.

Note that it is not translations that are asked for. Moreover, if a whole phrase were to be translated, some grammatical changes would be necessary (e.g., infinitive forms in Swedish rendered by a gerund in English (II-1): “utan att blinka” – “without blinking”). This was not reflected in the multiple choice alternatives.

Part III provides background information about the students: their country of origin, mother-tongues, students’ own estimations of their proficiency in English and in Swedish¹¹, and an indication of recently studied foreign language¹².

The data elicited from the answers to these questions completes the overview of 4 factors which, according to Hammarberg (2001), condition the choice of the “instrumental language”¹³: typology, proficiency, recency and L2 status (pp.22-23). That English and Swedish are typologically related is a well established fact (see for example Utgof 2006 pp.13-34). Additionally, it is assumed that English has a rather high status among the students, being their primary language of instruction. Finally, since the Swedish course is not compulsory, it is assumed that students have a reasonably high level of motivation for learning Swedish.

The answers point to the conclusion that English is indeed a most viable instrumental language option for the students. As will be discussed below, surprisingly, even German students sometimes prefer it as instrumental (4.3.1).

¹⁰ The correct answer for this deceptive cognate is actually “suffer”.

¹¹ One should approach students’ own reports of their proficiency carefully, since there is a risk they are underrated or overrated for a multitude of reasons. However, it was considered inappropriate to ask the students for the actual scores earned in the English proficiency test. No objective measure of Swedish proficiency could be available for the students in the middle of their first ever Swedish course. Nevertheless, it was felt that such a rough estimation was suitable for the purposes of the present investigation.

¹² A list of all languages ever studied by a subject would complicate the analysis of data. Some students have indicated languages they know even though they have been expressly asked to indicate if they have been studying any language other than Swedish. The information was not included in the overall statistical analysis, but browsed for discussion.

¹³ The language that is relied on, or used as a kind of basis, in L3 learning.

3.4.9 Computational method

Since a comparison of word form elicited on the basis of reports by a number of subjects, such as reported by Ard and Homburg, was found unsatisfactory, a computational analysis of selected words is used instead. The method selected for the study is Levenshtein distance¹⁴. It measures the amount of operations (replacements, deletions, insertions) needed to go from one string (word, letter sequence) to another. A simple Java application, SimChecker¹⁵, yields a value that is convertible to percentage representing how much the words are alike. E. g., “station” and “station” are 1.0, or 100% formally alike, while “slay” and “slå” are 0.5, or 50% formally alike, etc.

The patterns of regular correspondence (Lado 1957 p.83, Ellegård 1976 p.196, Ard and Homburg 1983 pp.165-168) are not taken into consideration. While this can be seen as a drawback, its advantage lies in that no preconceived view is adopted as to whether the students have noticed that such correspondences exist or not.

Obviously, this tool only measures formal string similarity. No mathematical method for measuring semantic similarity is proposed. However, the author’s own views and consequent expectations are described in the analysis of results, without the claim of being the sole correct approach. (The expectations are summarized in the table in Appendix 2).

In addition, using string analysis bears an underlying assumption that words are recognised letter-by-letter. In cognitive psychology, no common agreement has been reached as to how word recognition occurs, although the debate goes back to the middle of 19th c (Neisser 1967 p.105). Tachistoscopic experiments provide controversial data: although they have established that word recognition times are shorter than the sum of times required to recognise all of the characters, it is not certain that the word is always apprehended as a whole: “Although letter-by-letter identification is sometimes reported, on other occasions ... the whole word seemed to leap into awareness at once” (Neisser 1967 p.108).

Even if letter-by-letter recognition did unquestionably account for word apprehension, it is an accepted fact in psychology that not all letters need to be seen for word to be guessed: at short exposures, “subjects often “recognise” words that were not actually present” (Neisser 1967 p.107), which is why the values returned by Levenshtein distance may come across as too low to reflect psychological realities.

Word-apprehension errors were once explained through template matching: if a word the subject was presented with closely matched a word existing in a subject’s mind, the existing word was reported (e.g., FOYEVEER is interpreted as FOREVER). However, this theory was rejected once the experiments proved that word-like sequences were also reported as quickly, provided they were pronounceable (e.g., VERNALIT). This in turn gave rise to focus on spelling patterns (combinations of letters), as opposed to single strings. A valuable criticism is that the words cannot be pronounced before they have been identified, so fixation on pronunciation should be avoided (Neisser 1967 pp.110-113). The bottom line is that formal similarity measurement does not match psychological realities, which has its positive and negative sides.

3.4.10 Task formulation: are any words ever the same?

In the task description, the students are asked to rate similarity between words on a scale from “totally different” to “absolutely the same”. However, are two words, or two different occurrences of words, ever really “the same”?

Lado (1957) noted that total semantic correspondence between words in two languages is rare, and considered all words, the form and meanings of which are “reasonably similar”, to be cognates (p.91). He made the following reservation for his use of the term “similar”: “[It] is restricted here to items that would function as “same” in both languages in ordinary use. We know

¹⁴ Devised by Vladimir Levenshtein. Levenshtein, V.I. (1966). “Binary codes capable of correcting deletions, insertions, and reversals”. *Soviet Physics Doklady* 10. pp.707–710. Cited in Wikipedia: <http://en.wikipedia.org/wiki/Levenshtein_distance>

¹⁵ The author of the application is Jody Foo. Obtained via Magnus Merkel. Used with the permission of the author.

that complete sameness is not to be expected in language behaviour” (p.82). However, what is “reasonably similar” to speakers of different language backgrounds? The intuitions are bound to vary depending on people’s previous experiences.

In philosophy, the notions of sameness and similarity are even more problematic than could be initially expected. Goodman’s (1952) quandary with likeness of meaning between two things or concepts is based on the problematic relation between the signifier and the signified, particularly for abstract signifieds that can be conceived (e.g., through mathematical definition) but not imagined, and vice versa. Word pictures (spellings) are used to introduce concreteness. However, such reasoning leads him to conclusion that “no two different words have the same meaning” (p.73).

There is no space to discuss this matter much further. Suffice to say that Goodman received sharp criticism – along with the doctrine of Platonism – from Quine (1953), who resolves Goodman’s quandary through re-establishing reference between a word and its attribute by rephrasing a word as a description, with the help of bound variables. He also claims that meaningfulness does not equal to possession of an entity “meaning”.

It is imagined that subjects of the current study presented with a continuum between “totally different” and “absolutely the same” would approach their task from a practical rather than a philosophical point of view.

Thorndike (1901), one of the founders and pioneers in the theory of transfer, has run into trouble similar to Goodman’s. The model he proposed is known as the “identical elements model”, and it countered the doctrine of formal discipline, seeing mind as more specified than the formal discipline did. Thus, improvement in one skill would lead in improvement in another only if there was a crucial similarity between the two. However, his view of crucial similarity was so narrow and of transfer, so unadaptive, that he showed that transfer was limited to identical items if there were no effective training (cited in Singley and Anderton 1989 pp.2-9). Judd (1908) completed Thorndike’s theory by pointing out that “transfer not only occurs on the basis of identical elements ... but also can occur via the abstract general principle underlying a phenomena [sic]” (cited in Haskell 2001 p.36). As will become obvious, in the present paper, much attention is paid exactly to the underlying similarities.

This much being said, the researcher today is none the wiser: “How we are able to say that X is *similar* or the *same* as Y, or that this is like that, is a mystery” (Haskell 2001 p.189).

3.5 Collection of data

The prototype was tested on 20 November 2007, with 5 people participating in the test run. The form took between 11 and 15 minutes to complete by subjects with various proficiencies. Minor changes have been made before distribution: removing ciphers from the scale and changing the sentence 13 in Part II to one which allows noticing that the cognates are deceptive.

123 blank forms¹⁶ were distributed during the week 48 in 4 groups studying at Level I and 2 groups at Level II. At this time, the subjects have nearly completed their respective courses (the exams were scheduled during the successive week). 107 forms with complete Part I have been returned, as indicated in the table below.

The results from Part I of the form have only been analysed for the complete forms. This is necessary, since the form has been constructed in such a way that some items are deemed similar, and therefore, consistency on the part of students is expected in their assessments. If any answers are missing, no similarity value can be assigned and consistency or lack thereof cannot be established.

However, it ought to be said that most students only missed (or, as can be suspected in some cases, avoided) between 1 and 3 items. Only two forms were returned in a state that did not

¹⁶ The forms were printed out by Magnus Merkel at the Department of Computer and Information Science. The author thanks her supervisor for his help with this.

permit analysis. Additionally, one form was excluded since, while all the multiple choice questions were solved correctly, the values in Part I appeared to be set in reverse.

It would probably be not altogether inconceivable to include in the analysis the forms with minor amount of missing data. However, even after exclusion of the incomplete forms, the amount of data remains sufficient to draw conclusions, and therefore, full picture and consistency are prioritized. After all, 87% of students returned forms with Part I fully complete.

All the forms, however, have been checked for Part II, since missing answers can be explained either by the lack of time, or by avoidance (reluctance to guess wrong).

Table 2. Dates of form distribution and completeness of forms

Date	Comment	Number of forms	Complete Part I
2007-11-26	Level I, Group I	21	16
2007-11-27	Level I, Group II	24	23
2007-11-27	Level I, Group III	21	15
2007-11-28	Level I, Group IV	20	18
2007-11-28	Level II, Group V	16	16
2007-11-29	Level II, Group VI	21	19
Total:		123	107

3.6 Linguistic and cultural background of subjects

After the forms have been gathered, it has become clear that German-speaking students constitute practically a half of all participants; next well-represented groups are French and Spanish. Other language groups have too few representatives to permit a valid comparison between groups of speakers of the same language. Therefore, the comparison is made instead for similarity between different groups (Table 2). In some cases, the broad division is made into German-speaking subjects and the rest.

Of course, there are some researchers who are of the opinion that the emphasis should be placed strictly on individual learner “because he is the one who is engaged in transfer in the first place” (Kohn 1986 p.23). As will be seen in Chapter 4, indeed, individual variations can be very significant within the same language group.

Table 3. Native tongues and countries of origin of the students in the study

L1	Country of origin	Count	Per cent
German	Germany: 47, Austria: 6	53	49.5
French	France	20	18.7
Spanish	Spain: 10, Mexico: 1	11	10.3
English	Australia: 2, Ireland: 2, USA: 3	7	6.5
Greek/English	Cyprus	1	0.9
Russian	Lithuania: 1, Russia: 1, Ukraine: 1	3	2.8
Turkish	Turkey	2	1.9
Chinese	China, China (Taiwan)	2	1.9
Chinese/Japanese	China	1	0.9
Japanese	Japan	1	0.9
Latvian	Latvia	1	0.9
Polish	Poland	1	0.9
Italian	Italy	1	0.9
Czech	Czech Republic	1	0.9
Bosnian	Germany	1	0.9
[Urdu]	Pakistan	1	0.9
Total:		107	100

4. Results and discussion

In this chapter, the results obtained from the form are presented and discussed, as well as the factors that may have conditioned the results. In the light of this data, a critical overview of an existing similarity-based language teaching project is made. Finally, main findings are delineated.

4.1 Measuring Part I

Since the continuum between “totally different” and “absolutely the same” on the form is represented by a 10 cm long line, the positions of crosses placed by the students have been measured using a ruler, in millimeters, thus yielding a value between 0 and 100.

All the values from the complete forms have been written down in Microsoft Excel and divided into intervals between each ten ciphers using the FREQUENCY function and bins of 10, 20, 30, 40, 50, 60, 70, 80, 90, and 100. Thus, the number of marks in the intervals 0-10, 11-20, 21-30 ... 91-100 has been measured¹⁷. Percentages are also calculated in MS Excel.

The measurements of formal similarity for Part I items with Levenshtein distance are to be found in Appendix 2, along with expected similarity ratings.

Although the initial design of the form involved usage of ciphers, it was abandoned in hope that the students would place the mark after their intuition rather than concentrate on mechanically choosing a number.

The design of the form has consequences that have to be kept in mind in accounting for the results. However, in analyzing the data, some prominent factors and strategies used by the students have been noticed, and they need to be accounted for before the actual results and their discussion are presented.

4.1.1 Factors and strategies

The students were asked to place a cross on the line to reflect how similar they considered the word pairs to be. Most of the students, however, positioned crosses hovering over the line. The values were then still measured from the middle of the cross.

Besides, students used crosses of various sizes. This can be important in case of very high or very low values, since the centre of a large cross will be placed usually to up to 5 mms further away from the extreme. In cases when it was apparent that the person who filled in the form could not place the cross closer to the extreme end, both the actual value and the intended values were considered.

Another occurrence noticed in placement of crosses could be termed “margin” effect: some students tend to leave some millimeters of free space on the continuum possibly to serve as margins, because placing cross at the farthest end does not look good graphically. This can result in somewhat lower values when an indication of total similarity is intended, or higher values if the word pair is deemed totally dissimilar. However, since the final calculations are based on intervals of 10, this does not affect the results drastically.

A strategy reported during the test run and observable in the experiment forms is to award central values in case of uncertainty. There are at least two immediate explanations for this. First, central position is a good choice, since it will be the closest to the “correct” answer, wherever that one happens to be. Second, the students mistake the task at hand with a similar one: namely, instead of rating from the “least similar” to the “most similar,” they rate from “strongly agree” to “strongly disagree” (that the words are similar). In the forms of the latter type, the middle value is “neither agree nor disagree” which can be equalized with “I do not know.”¹⁸ Other students prefer to award zero similarity if they are not certain there is any connection between two words.

¹⁷ These intervals are marked with 1, 2, 3 ... 10 respectively on the horizontal axis in the histograms. The vertical axis shows the percentage of students opting for the interval.

¹⁸ In retrospect, it could be of interest to present the subjects with another task of this type, with the measurement at the ordinal level, which would read: “The underlined words in the sentences below are similar. Do you agree?” – and

Finally, very few students were uncomfortable not knowing where they place a mark, so they indicated their opinion with a cipher. The measurement was still taken from the placement of the mark and not its content.

4.2 Analysis of items in comparison to expectations

In making the form, the author has considered which similarity ratings could make sense and thus be awarded to items (see Appendix 1). While such ratings are subjective, probably everyone will agree that from a practical consideration, some items are virtually the same, and others have very little in common beyond a few same letters, whereas the rest can be similar in some respects but differ in others. Below, the results received from the form are analysed and compared to the expectations set. Where the space limits allow, a discussion of the results is given.

All in all, 6 items correspond well to expected ratings, 12 are rated below expectations, another 6 items have received higher ratings than expected, and 2 cases are unclear.

4.2.1 Items rated in accordance with expectations

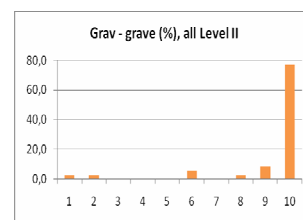
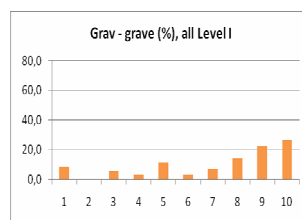
6 items in Part I correspond well to the expected similarity ratings.

1. *Ofta – often*. Both words belong to the same word class (adverbs). Their frequency is very high¹⁹, and the usage is most similar. 44.4% of subjects put the cross in the interval 91-100, while 92.6% of all said that the similarity value is at least 71 or higher.

2. *Station – station*. Despite the variation in pronunciation, practically a half of the subjects, 49.5%, have awarded similarity of 91 and higher. Overall, 79.4% consider the similarity to be at least 71 or higher. That at least some of the students have paid attention to difference in pronunciation transpires from a comment left by a German-speaking student, who made a correction to the initial cross placement toward less similar and wrote: “but not in pronunciation...”.

3. *Folk – folk*. 50.5% of all subjects award this word pair the highest possible similarity rating. More precisely, 58.3% of Level I and 34.3% of Level II students do so. While beginners assume total formal and functional equivalence, and Level II students appear to have some reservations as to use (e.g., plural use in English but not Swedish) and connotations, the ratings are sufficiently high to correspond to the expected near total equivalence.

4. *Grav – grave*. In this word pair, the senses correspond near totally and formal similarity is 80%. The minor difference in pronunciation has been left uncommented, which is probably to say that it does not affect similarity judgement. This also shows that Lado’s (1957) preference for sound form over written form is not necessarily justified (see 3.2).



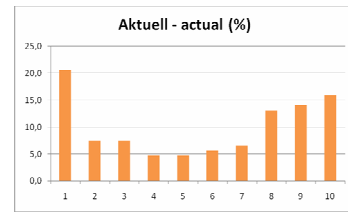
43% of all subjects have indicated the highest possible similarity in the interval of 91-100. Both words can be used in the sense of “burial place (in the ground)”, as in the example, and to mean “(ominously) serious”. Here, interestingly, Level II students are practically unanimous at allotting high rating, with 77.1% indicating it. Level I students propose different solutions, yet gravitate towards higher rather than lower similarity.

provide 5 alternatives. The ordinal level of measurement, however, would be a lower one compared to the one used in this study.

¹⁹ SUC: ofta 610, oftast 164, oftare 44. BNC: often 37162.

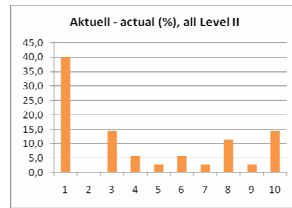
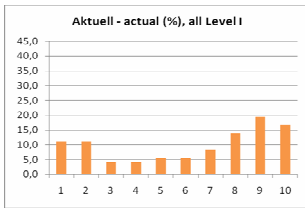
5. *Aktuell* – *actual*. The overall ratings are as expected, since they reflect the judgements both of the students who are aware and those unaware that these two words are commonly considered “false friends”.

Most of Level II students appear to already know that “aktuell” and “actual” are deceptive cognates. Additionally, the German cognate corresponds to the Swedish but not the English meaning. (However, not all of German students seem to know that, as even they award high similarity ratings).



Many Level I students, on the other hand, see the similarity that is not there. Or is it not?

A question may be raised as to how much the difference does interfere. In terms of perceptive competence, the difference between “actual news” and “topical news” is not crucial: it is still understood that news is somehow important, existent and/or genuine in terms of present-day



reality. It appears that beginners are more open to this interpretation than those forewarned of the difference. Certainly, the beginners should be advised of dangers of sense distortion due to the use of the deceptive cognate in production. Yet it is easy to overlook the essential similarity once

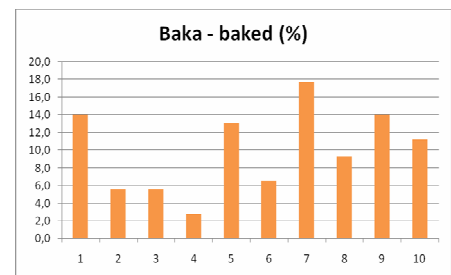
high proficiency is attained and concentrate on the differences. It is therefore one can be reminded that beginners often have a fresh, “open-minded” approach that one can learn from.

6. *Respektive* – *respectively*. The similarity indication was expected to be high, yet suffixation of the word and difference in amount of syllables could have been problematic (cf. Ecke 2001 p.91, Neisser 1967 p.109). However, the students do not seem to be bothered by this: the judgements of 28% fall in the interval 91-100, and of 54.2%, above 81. This confirms Campaña & Ecke’s (1998) observation that the left part of the words is more salient than the right part (cited in Ecke 2001 p.92). There is no significant difference between judgements of Level I and Level II students for these items.

4.2.2 Items rated below expectation

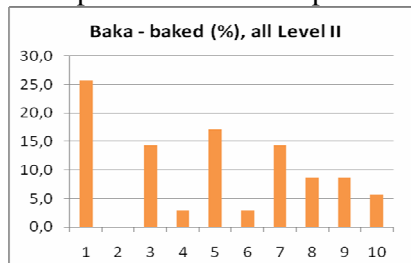
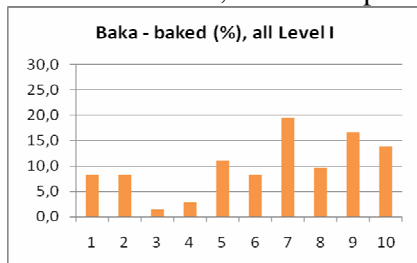
Nearly a half of Part I, 12 items, received similarity ratings below expectations.

1. *Baka* – *baked*. For this word pair, the opinions are divided; for overall result, the option somewhat more popular than the others is 61-70: the ratings of 17.8% of subjects land there. Unexpectedly, most of the Level II students have rated the items as less similar than did Level I students. Namely, 25.7% in Level II awarded the rating below 10, which corresponds to non-existent similarity.



The most obvious reason for this is that the words belong to different word classes, and thus, the differences are of grammatical character.

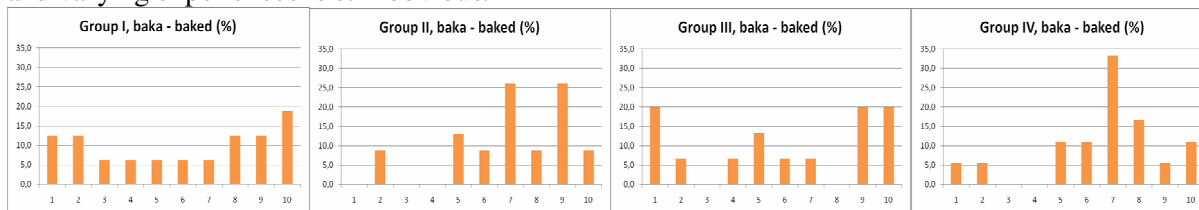
However, another explanation is possible. From the practical point of view, the process of cooking these two different products varies.



cooking these two different products varies. Bread is baked in the oven, while the beans can be baked on a frying pan. Variation in the real-life experience in this case can affect the judgements. Yet

as the prototypical sense of both words has to do with “exposure to high temperature in order to make something edible,” the high proportion of “totally different” answers has struck the author as surprising.

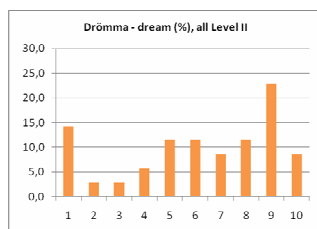
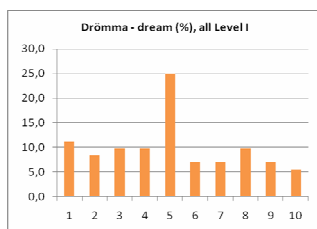
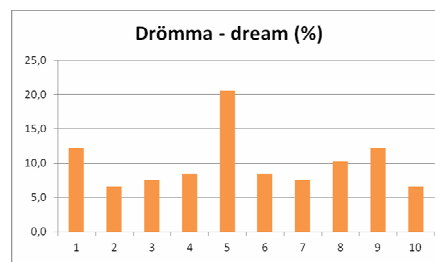
The division of results in Level I shows high variation and may indicate somewhat haphazard choices. Group IV is the one that comes closest to the expected performance, with some variations; it is followed rather closely by Group II, but the importance of different word classes and varying experiences is still obvious.



2. *Drömma – dream.*

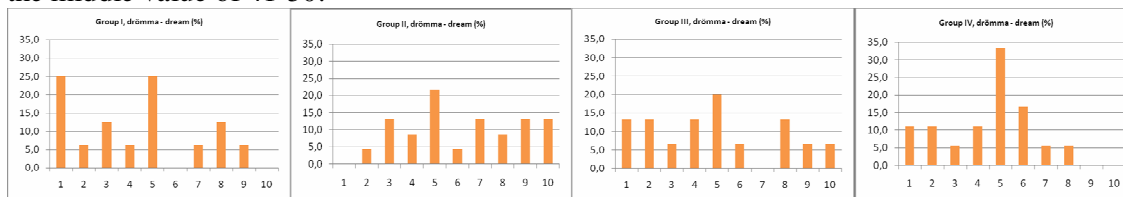
(The corresponding noun in Swedish is *dröm*).

In English, the verb and the noun for “dream” are identical in form as they can be formed via conversion. Therefore, the expected similarity value is 81 and above, with respect to minor formal and grammatical differences. However, most students have assigned values considerably lower than that: 20.6% rate it between 41 and 50, the most obvious explanation being that words belong to different word classes in English and in Swedish. The comparison between Level I and Level II shows that it is mostly beginners that tend to award central values (25%), whereas 22.9% of the more advanced students opt for the expected rating of 81-90. It is, however, surprising that as many as 14.3% of Level II students state there is no similarity whatsoever.



Level I and Level II shows that it is mostly beginners that tend to award central values (25%), whereas 22.9% of the more advanced students opt for the expected rating of 81-90. It is, however, surprising that as many as 14.3% of Level II students state there is no similarity whatsoever.

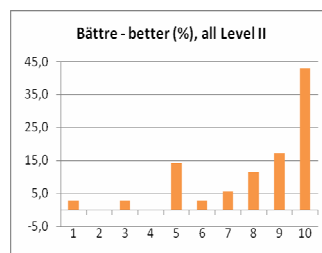
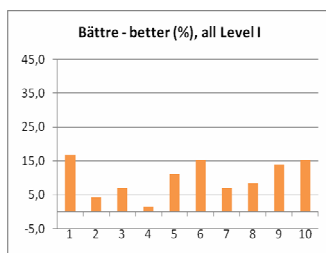
The comparison between different Level I groups shows that they are not altogether unanimous in their rating, yet central values are preferred. Group II is the only beginner group that did not state the words are totally dissimilar, whereas 25% in Group I, 13.3% of Group III and 11.1% of Group IV claim just that. In Group IV, opinions vary the least as 33.3% of students opt for the middle value of 41-50.



3. *Bättre – better.*

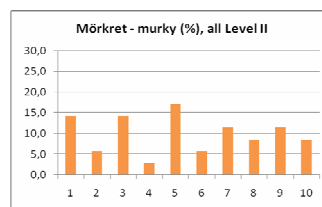
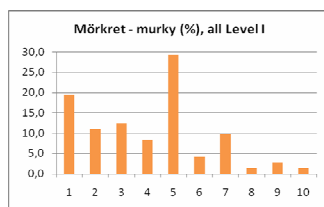
Almost a half of Level II students accept “bättre” and “better” to mean absolutely the same and serve the same function (ratings of 91-100), while Level I students are uncertain and the results are rather evenly distributed. Remarkably, the greatest share of Level I subjects, 16.7%, have stated that there is no similarity between these words whatsoever, even though these are both adjectives in the comparative degree, without the drastic difference in pronunciation (such as for example in *station – station*). Objective formal similarity as measured by Levenshtein distance is 0.5, or 50%.

There should certainly be no difficulties stemming from words' belonging to different word classes, as the two prior examples show. However, overreliance on the metalinguistic knowledge could explain the difference: "better" is the comparative form of "good", while "bättre" is comparative form of "bra", and "good" and "bra" are not formally similar. There is a synonym of "bra", "god", with a somewhat more restricted meaning (*god jul, det god[a] brödet*), which is "godare" in comparative. If the students are familiar with it, it may have acted as a competing synonym and contributed to lower scores.



Once again, the author finds it surprising that the words so similar in form and function to her have been rated as mostly different by beginner students.

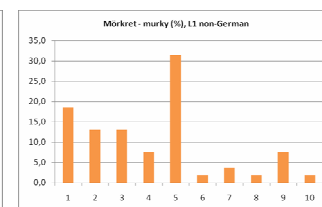
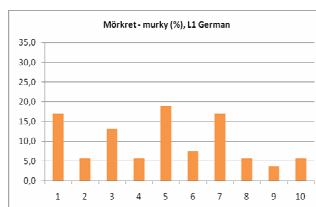
4. *Mörkret - murky*. This is a word pair where a high-frequency Swedish word is compared to a less frequent, restricted English word. Additional complexity arises from the words' belonging to different word classes and as a result, differing suffixation.



25% of all students indicate the similarity of 41-50, which is close to the expected 51 and above. More Level I students opt for this similarity than students studying at Level II.

Across the Level I groups, the answers are divided as follows. Groups I and II have most similarity ratings at 41-50. Only in Group I there are similarity ratings of 91-100 to be found, but not in the remaining three beginner groups. Group III is most sceptical as to existence of similarity in this word pair: 40% of the students rate similarity as non-existent, below 10.

Interestingly, the results seem to point at the fact that non-German-speaking students are more unanimous that those with German as the native tongue. The opinions of German-speaking students are divided, whereas 30.4% of all non-German speakers propose the rating of 41-50. This example is

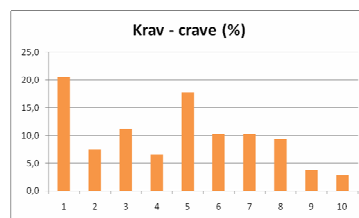


a noteworthy illustration of how little agreement there can sometimes be within one language group, whereas various other language groups can arrive at practically the same conclusion.

5. *Krav - crave*. In this word pair, the students are presented with words from different word classes and yet having the same prototypical sense of "strong motivation to obtain something".

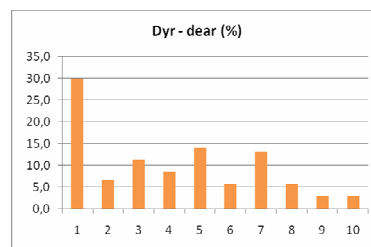
Although many students (17.8%) have opted for the interval of 41-50, which is even higher than the expected 31-40, the share of those who have marked zero similarity is greater (20.6%). It is mostly non-German speakers that see no similarity at all (22.2% of them), while 22.6% of speakers of German give the expected rating of 31-40.

The overall results in Level I are rather even, with somewhat prevalent share of subjects choosing intervals 0-10 and 41-50. In Level II, a whole 28.6% of subjects placed their marks between 0 and 10; thus, it can be said that the prototypical sense was largely ignored, and more so by Level II subjects. Another 20% of Level II students choose the next most popular interval, 41-50, but this is probably explained by the big share of speakers of German with the propensity to award high ratings.

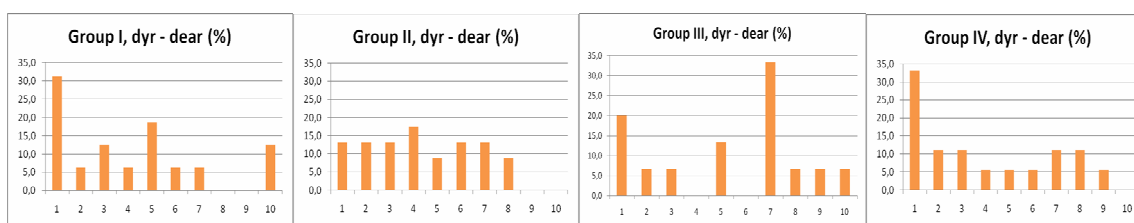


6. *Dyr – dear*. Both groups tend to doubt the equivalence between “*dyr*” and “*dear*”, although the example sentences demonstrate the possible case of equivalent usage: “*dyr läxa*” (“expensive lesson”) - “mistakes ... cost us dear”.

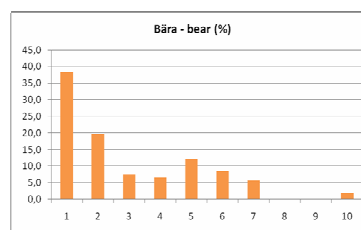
Particularly Level II students are unaccepting of equivalence, with 42.9% rating it as 10 or below. Just as in the case with the word pair *bättre - better*, this can be seen as a case of overreliance on metalinguistic, or perhaps “dictionary” knowledge: the students know that “*dyr*” is most frequently translated into “expensive” and is not used as an address or form of endearment in Swedish. They rely on that knowledge, obviously seeing the words as “false friends”, and disregarding the possible similarity illustrated by the example. In this case, they judge in terms of common features, perhaps superficial features, and not the underlying sense, which is congruent with the description of common problem in transfer (Singley and Anderson 1989 p.20,22; Haskell 2001 p.199,180,186, see also section 2.3). Beginners, on the other hand, are open to similarities in comprehension, yet may not be aware of the dangers of using these items in production.



Comparing the results from different Level I groups, one can say that Group III is the one most open to similarity between *dyr* and *dear*: ratings of 33.3% at 61-70. In Group II, the division of results is non-saying; Groups I and IV are highly sceptical and deny any high degree of similarity. It seems that by this stage and for this example, some beginners are sufficiently advanced to have supplanted the beginner’s attention to similarities for early “dictionary” proficiency.



7. *Bära – bear*. The Swedish word “*bära*” is normally translated as “carry” or “wear” and is used in both literal and metaphoric sense: “*bära någon på axlarna*”, “*bära ansvaret*”. In English, polysemous “bear” can be used literally in the meaning of carrying something physically²⁰. Speaking from an impression, however, is used mostly figuratively in the corpus data, often in collocations such as “bear in mind”. Cambridge dictionary identifies such usage with an underlying sense of “keep”²¹.



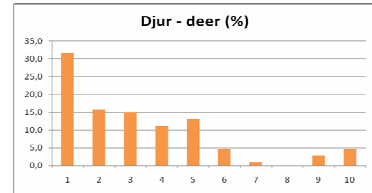
The author’s line of thinking is probably unorthodox as she associates having something in one’s mind with carrying something in one’s bag, but metaphorically.

In any case, the students seem not to have seen the connection and, once again, they appear to rely too much on their metalinguistic knowledge. This conflicts Kellerman’s (1989) finding that in transferring different senses of a word, concreteness of imagery is not an important factor, since metaphorizations of prototypical sense in his experiments are normally judged as closer to the main sense (pp.37-38). Kellerman (1989) quotes Ullman (1977) who states that “A word can be given one or more figurative senses without losing its original meaning ... In this way, a number of metaphors may ‘radiate’ from the central sense” (p.39). While this has been proven true in their respective findings, it does not seem to apply to the case of *bära-bear* in the present study.

²⁰ Cf. <<http://dictionary.cambridge.org/define.asp?key=6447&dict=CALD>>: bear gifts, or drinks (into the room). One could also recall compounds such as “airborne”.

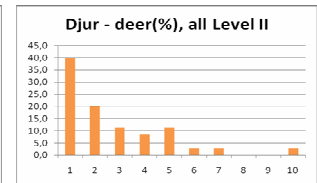
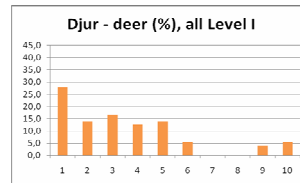
²¹ <<http://dictionary.cambridge.org/define.asp?key=6456&dict=CALD>>

8. *Djur – deer*. This item involves words that are historically of the same origin. Yet semantic development has led to narrowing down of the sense of *deer* to mean a particular kind of animal. Thus, these words are now in superordinate/subordinate relationship, for which the similarity judgement is expected between 11 and 30.



Both Level I and Level II students do not seem to consider such relationship contributing to similarity. Just as is the case for *drömman – dream*, the curve is sharper towards the negative end in Level II students. 27.8% of Level I subjects and 40.0% of Level II subjects rate similarity as below 10. The values indicated by a third of all students, however, correspond well to the expected rating, 11-30. While historical relatedness requires competence to notice, the superordinate/subordinate relationship could have expected to be noticed.

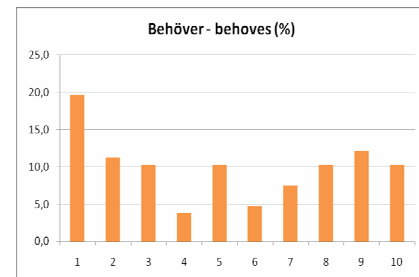
However, another factor may be that it is more difficult to go from a specific instance to a more general one than vice versa. I.e., it is easier to understand with the Swedish language as a basis that an English text about a “deer” is about some kind of “animal”, than to understand that Swedish word “djur” denotes any possible animal.



9. *Behöver – behoves*. This is a more extreme case than *mörkret – murky* of a high frequency Swedish word corresponding to low frequency, and even archaic English word. The expected similarity value would be around 41-50. As can be seen from the graph, the majority of students indicate that they do not see any similarity.

People who have indicated high fluency in English are not infrequently prone to skepticism, while people who claim lower fluency appear more accepting, judging from the sentences they were presented with. This is one of the items where group variation is very significant.

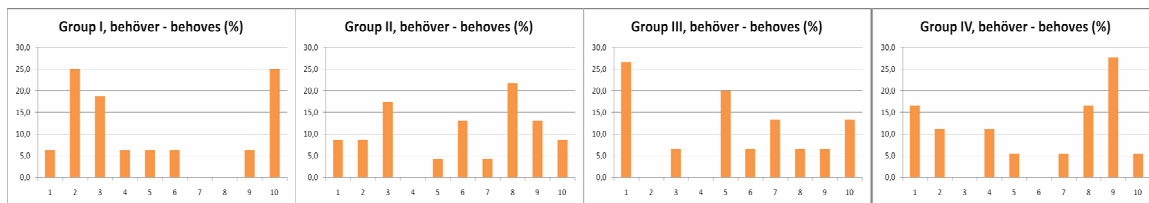
Group I has produced surprisingly high values: 25% placed crosses in the interval 91-100. Another quarter of students in this group indicate modest but viable similarity of 11-20. Group I is followed closely by Group IV, with 27.8% of its members making ratings at 81-90.



Group III is the most sceptic of the beginner groups: 26.7% see no similarity at all, interval 0-10. However, only in this group have the next biggest share (20%) of students awarded the expected 41-50 value.

Group IV is the one with greatest share of “open-minded” students, who accept the probably little known word: 27.8% rate the similarity at 81-90. By this, they show the ability to be very little disturbed by frequency data and difference in stylistic register.

Group II can be characterized as rather neutral, but more positive than negative.

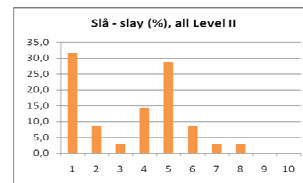
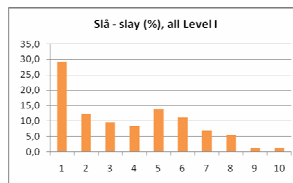


Level II students are more unanimous: 31.4% indicate zero similarity, compared to only 13.9% of all Level I students.

Another reason that makes this word pair interesting is that students left small notes. An English-speaking student from Australia, for example, was surprised by seeing the unfamiliar L1 lexical item and commented: “is this a word?”, with a small arrow pointing at “behoves”. Another English-speaking from Australia wrote two question signs beside this word. Finally, a German-speaking student wrote in brackets: “(needs?!”, the punctuation also clearly showing surprise.

10. *Slå – slay*. These two items would be called “false friends” in production, yet in comprehension, they belong to the same category of aggression/attack/harm. And yet 29.9% indicate there is no similarity whatsoever. Another 18.7% indicate similarity of 41-50%.

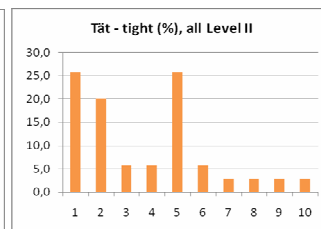
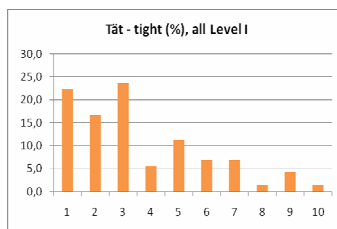
Level I students, clearly aware that the cognates are not equivalent give minimal similarity ratings, failing to indicate that they see category membership. Level II students, as in some previous cases, overrely on the dictionary knowledge in 31.4% of cases; however, nearly as many, 28.6% see that similar meaning of “attack, a hit [that leads to death]”: the ratings thus fall in the interval 41-50. Old English had both senses: “to smite” and “to kill with a weapon”, PG **slakhanan*, from base **slog-*, PIE **slak-* (Etymonline).



11. *Tät – tight*. “Tät” in Swedish often corresponds to “thick” in English, in describing smoke, mist, traffic or smell. The compound “watertight” is used mostly figuratively (as in “without loopholes”) but is also in its direct meaning; with articles of clothing, “waterproof” is preferred.

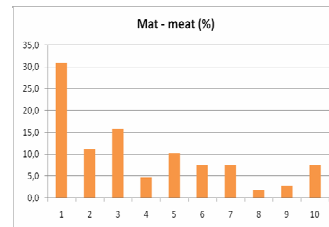
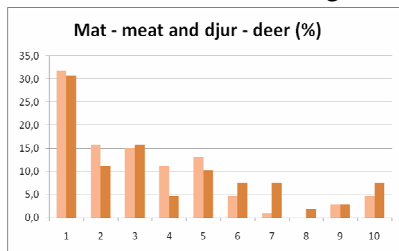
However, such an example sentence has been chosen as to illustrate one of the cases when the meanings are at their closest.

The same prototypical sense of *tät – tight* is one of “parts sitting closely” (mist particles placed close to each other, or clothes fitting snugly, etc). This meaning seems to be acknowledged by 25.7% of Level II students, who have indicated similarity of 41-50, which is higher than the expected (11-30 interval).



Yet the majority of Level II and definite majority of Level I opt for non-existent similarity. Formal similarity (LD) is 39%, so at least a slightly higher similarity could be expected. However, obviously this is the case where items may look similar, are similar to a theoretician, but do not feel so, as described by Eich (1995) (see 2.4.1).

12. *Mat – meat*. Just as in *djur – deer*, the students are presented with “historical cognates”, the meanings of which have become specialised in a way that made the word pair stand in superordinate/subordinate relationship: meat is a kind of food²². Therefore, it is proposed that there should be some degree of similarity between words, possibly a rather low one.



The Level II students are aware that “mat” and “meat” do not mean the same, and, once again, appear to have relied on “dictionary” knowledge in their similarity judgements. As a result, 54.3% of them fail to see the superordinate/subordinate relation: similarity is indicated as below 10. Level I students, on the other hand, being less informed, opt for all possible options.

The expected rating is between 11 and 30, perhaps at 20. After all, meat is a subcategory of products (beef, pork, lamb, poultry etc). Another subcategory at the same level include fruit and

²² Old English “mete”: “food, item of food” (Etymonline).

vegetables, dairy, baked products and seafood. Thus, 100% divided by 5 equal categories means that each of them is 20% similar to the superordinate sense of food.

However, such approach is static and hierarchical, and does not take frequency in account. Personal experience and perception might provide much more reliable guidelines for some. For example, a person who does not eat fish at all but eats meat 70% of the time may equate meat with food in 70% of cases, and thus award a high similarity rating. Suppose a vegetarian were to make his or her assessment in such a manner – the meat would not equal food, regardless of the origin of the word and the dictionary sense. This finding is congruent with Kellerman’s (1986) who states that it is impossible to tell whether people provide accounts of frequency of linguistic occurrence or the frequency with which they have encountered the objects themselves (see 2.3.2).

One could interpret the results in a way that suggests that increased knowledge equals increased skepticism. However, lower values in Level II students indicate higher proficiency and understanding of differences in use and connotations. Therefore, one should see low scores by more advanced students as positive, and not as something prohibitive to transfer. Moreover, this finding also shows that Vosniadou and Ortony’s (1989) concern is ungrounded: “...whereas analogies help novices gain a preliminary grasp of difficult concepts, they may later become impediments to fuller or more correct understandings” (p.13, cf. 3.3.1). As the students’ proficiency develops, they become aware of the nuances and cease to rely on previous knowledge base. It is also consistent with Haskell’s (2001) assertion that “the similarity of two objects is not fixed ... but will change with alterations in our knowledge base” (p.102).

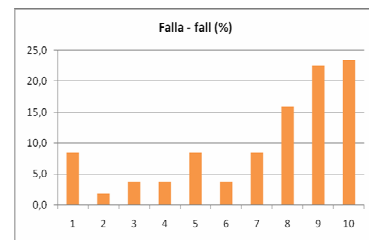
Nevertheless, while it is understandable that Level II students see more differences due to all the abovenamed factors, it is still surprising that they often unanimously indicate zero similarity, or no similarity beyond some common letters, where the intermediate semantic similarity is actually present. Level I students are not infrequently more open to similarity, yet this can stem from the lack of knowledge.

4.2.3 Items rated above expectation

All in all, 6 items were rated higher than expected.

1. *Falla – fall*. Results for this item are very similar for both groups, although the curve is sharper towards higher similarity for Level II students. It was expected that the existence of a competing synonym (“ramla”) would lower the similarity values.

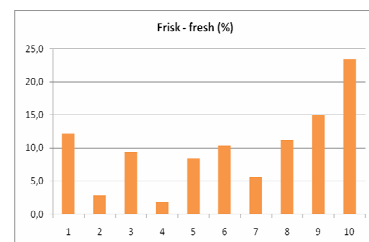
The majority of non-German-speaking subjects, 22.2%, award the rating of 71-80, while 60.4% German-speaking students consider the similarity to be 81 or above. Still, most language groups tend to award high similarity ratings.



2. *Frisk – fresh*. Also overrated like *falla – fall*, with no obvious consideration given to the competing equivalent (“färsk”), which is the only possible option in many collocations (e.g., “färsk grönsaker”, not “friska grönsaker”). “Frisk” is normally translated as “healthy” and at early stages of learning is thus treated as an antonym of “sjuk”.

Here, obviously, the context – the sentences chosen so that the two words function similarly – and formal similarities contribute to overrating.

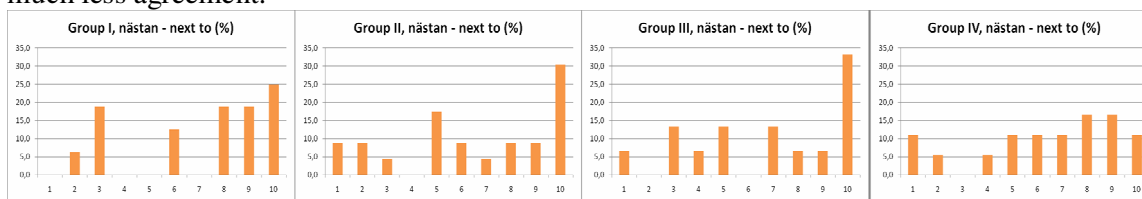
Level II students have produced contrastive results: they are so to speak more “polar”: both more and less certain of the equivalence of “frisk” and “fresh”. The ratings of 20% are between 0 and 10, while 25.7% indicate 91-100 and another 20% 81-90. This means all in all 45.7% vote for 81 and above.



3. *Nästan* – *next to*. “*Nästan*” is normally rendered in dictionary translations as “almost”, “practically” (Lexin), or, as was the case with the student book vocabulary list, “nearly” (Rehnqvist 2007). However, the use of “next to” in English is not limited to spatial preposition and can provide a useful cue for inferring the sense of “almost”. This meaning is illustrated by the example sentence. However, the similarity ratings have been even higher than expected, seeing as the author supposed that the prepositional sense would provide an important counterweight.

Besides, seeing as grammatical differences have caused problems previously, lowering similarity scores, it is surprising that a single word form equivalent to a two word form has not had that effect.

It seems that beginners are assured of total correspondence of form and function (25% 91 and above), while Level II leaves some space for difference (22.9% 81-90). In terms of individual Level I groups, Groups II and III also saw similarities as high, with 30.4% and 33.3% allotting the highest score, respectively. Group I follows quite closely. In Group IV, on the other hand, there is much less agreement.



4. *Glad* – *glad*. In this word pair, the similarity is believed to be somewhat overrated. 41.1% of all subjects rate it at 91-100; 47.2% of beginners and 28.6% of Level II students. In English, “glad” is practically never followed by a noun²³, whereas in Swedish, it is commonly used so in describing a cheerful disposition. Such grammatical differences in usage, which have shown themselves to be a valuable factor in similarity assessments, do not appear to cause the subjects to lower similarity ratings by quite as much.

5. *Offer* – *offer*. It was expected that many students would not be able to understand that they were presented with deceptive cognates by relying on context, although it was hoped that some would. And, as expected, 30.8% claim they are absolutely the same. As could be anticipated, more beginners (34.7%) make this claim than Level II students (22.9%). Besides, while only 13.9% of Level I students have indicated similarity under 20, 37.1% of more advanced students did so.



This word pair is of particular interest in what concerns its etymology: Hellquist (1992) assigns the varying sense to Old High German “*öpfar*” or Middle German “*öpper*”, where it came from Latin restricted to the sense of “take away something from oneself (to give away to gods)”. In English, same Latin loan (OE “*ofrian*”), on the other hand, accounts for the other “half” of the sense: “to present, bestow, bring before; to present in worship” (Etymonline). Thus, one could see it is a same word, different senses of which have been isolated in the two languages under observation.

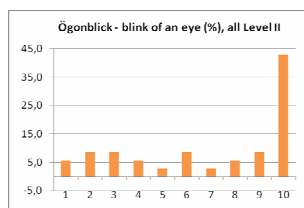
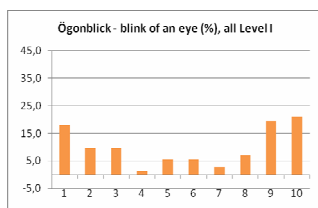
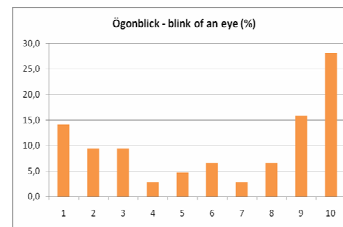
6. *Ögonblick* – *blink of an eye*. The subjects were expected to be familiar with the constituents of the compound, “*öga*” and “*blicka*”. It remained to see whether they would be able to break up the

²³ Two exceptions listed by Cambridge online dictionary are “glad tidings” and “glad rags”. <http://dictionary.cambridge.org/results.asp?searchword=glad&x=0&y=0>. In BNC, there is one case of “a glad hander” and two cases of “a glad cry”. Yet unlike Swedish, it is not used to describe a person’s character.

word into its constituent parts. The English collocation in the English sentence provided a good guideline.

However, in this case, the similarity is believed to be somewhat overrated, with respect to multiword collocation vs composite word and variations of meaning: “*ögonblick*” often denotes a “moment, the amount of time required to blink”, while “in the blink of an eye carries” rather an adverbial sense of manner, i.e. “very quickly; during a moment, during the time necessary to blink”.

Seeing as the subjects were rather skeptical when encountered with words from different word classes earlier in the form, it is unexpected they should act inconsistently and disregard the grammatical difference for this word pair. However, it only shows that overreliance on superficial metalinguistic knowledge occurs when sufficient training makes such overreliance possible. In remaining cases, the students still tend to see the similarity. Formal similarity between constituent parts also lead to increased assumptions of semantic similarity of a composite.



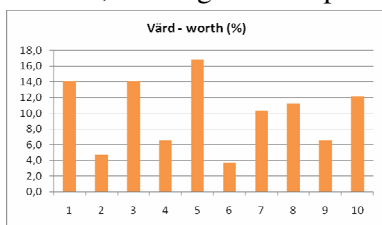
Low scores in this case (between 0 and 20) are attributed to an inability to define the stems in the word.

Level II students, as in a number of previous examples, have given much more uniform ratings that subjects studying at Level I, although a degree of variation is present.

4.2.4 Unclear cases

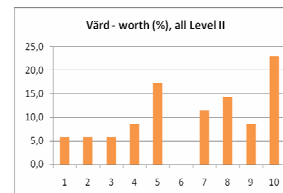
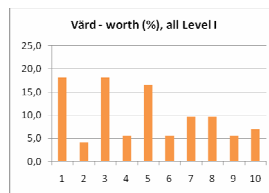
There are two cases where the results are hard to summarize in one definite way.

1. *Värd* – *worth*. In the overall result for this word pair, low, middle and high similarity ratings are awarded, forming no clear picture.

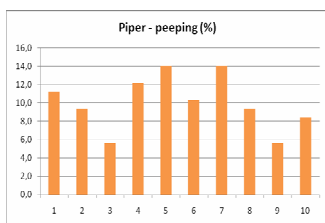


Obviously, in the case of this word pair, higher proficiency in the language allows to see the similarities which are not obvious to the beginners. An additional influence may be exerted by a high proportion of German students in the Level II groups, since there is a cognate in German. However, not all Level I German students are inclined to giving a high similarity rating to this word pair, the most popular rating being 41-50 (by 20.7%).

This corresponds well to the finding that a certain proficiency should be reached before transfer can occur (see 3.3.1), since “lower-proficiency learners ... do not have the necessary linguistic resources” for that (Kasper & Rose qtd. in Ringbom 2006 p.66).



2. *Piper* – *peeping*. There is confusion and a high degree of variation in opinions as to the similarity of these onomatopoeic words. On the one hand, different grammatical forms could have contributed to lower scores. On the other hand, in both languages, items can be used as sound imitations, which is also acknowledged by others, yet in English, the sense of “look secretly” provides a strong competition in use. It may be that the students are also more familiar with the latter sense. One student has left a comment, confirming the author’s interpretation of the lower values as been given when grammatical meaning/word class differ. The comment reads: “verb-adjective²⁴”.



²⁴ Certainly, it is rather a present participle, yet it is used in adjectival sense. In any case, the student’s point is clear.

4.3 Part II results

The choices of all students are summarized in the table below.

Table 4. Part II: Multiple choice answers – all groups

Question #	Swedish word	Alternative	Number of choices	Per cent	Correct	Levenshtein distance	
1	blinka	a) blink	85	69.1	yes	~0.67	
		b) back off	4	3.3		0.125	
		c) respond	25	20.3		0.0	
		d) blankly	6	4.9		~0.57	
		no answer	3	2.4			
2	smälter	a) smart	3	2.4		~0.43	
		b) smell	33	26.8		~0.43	
		c) melt	62	50.4		yes	0.5
		d) taste	24	19.5			~0.29
		no answer	1	0.8			
3	olja	a) butter	0	0.0		0.0	
		b) hire	2	1.6		0.0	
		c) wood	1	0.8		0.0	
		d) oil	120	97.6		0.25	
		no answer	0	0.0			
4	vapen	a) coat of arms	0	0.0	yes	~0.08	
		b) weapon	101	82.1		0.5	
		c) vapour	12	9.8		0.5	
		d) violence	6	4.9		0.375	
		no answer	4	3.3			
5	vinner	a) return	5	4.1		0.0	
		b) lose	1	0.8		~0.17	
		c) vain	1	0.8		~0.33	
		d) win	113	91.9		yes	~0.33
		no answer	3	2.4			
6	rå	a) ray	7	5.7	yes	~0.33	
		b) raw	92	74.8		~0.33	
		c) red	11	8.9		~0.33	
		d) real	12	9.8		0.25	
		no answer	1	0.8			
7	blek	a) cold	9	7.3	yes	0.0	
		b) bleak	47	38.2		0.8	
		c) bright	53	43.1		~0.17	
		d) unimpressive	6	4.9		~0.08	
		no answer	8	6.5			
8	sjukbädd	a) smoke weed	6	4.9	yes	0.3	
		b) sea bottom	8	6.5		~0.19	
		c) sickbed	98	79.7		0.5	
		d) sink	6	4.9		0.25	
		no answer	5	4.1			
9	kryphål	a) idea	16	13.0	yes	0.0	
		b) way out	41	33.3		~0.14	
		c) loophole	24	19.5		yes	0.375
		d) creepy hall	35	28.5		~0.36	
		no answer	7	5.7			
10	iskallt	a) isolated	11	8.9	yes	0.375	
		b) ice cold	100	81.3		0.25	
		c) ground	6	4.9		0.0	
		d) wooden	2	1.6		0.0	
		no answer	4	3.3			
11	nöden	a) night	10	8.1	yes	~0.19	
		b) notion	21	17.1		~0.33	
		c) need	61	49.6		~0.39	
		d) nowadays	25	20.3		0.25	

		no answer	6	4.9		
12	binda	a) block	7	5.7		~-0.19
		b) bring	17	13.8		~-0.39
		c) bind	81	65.9	yes	0.8
		d) bend	13	10.6		0.6
		no answer	5	4.1		
13	lida	a) suffer	61	49.6	yes	0.0
		b) lead	37	30.1		0.25
		c) lid	18	14.6		0.75
		d) loathe	3	2.4		~-0.17
		no answer	4	3.3		

It can be seen that most students have selected the alternatives intended as correct, either by guessing, inferring from context or by relying on previous knowledge. However, it should be kept in mind that in single groups, performance is sometimes not as clear cut. Just as is the case with the results in Part I, the subjects studying at Level II normally express less varied opinions than the subjects from Level I groups.

The table above illustrates very well the interplay between the formal similarity and the choices. By looking at items 4, 9, 10, 11 and 12, one can see that more formally similar items are normally preferred by more people, unless they reason from context, as is the case with other items. This finding is congruent with Ringbom's (2006) assertion (cf. 2.3), which can be cited again here in its extended form:

...formal similarity to an existing L1 word is perceived first, in that getting the word form precedes getting the word meaning. If formal similarity can be established, it provides the basis for a subsequent assumption of an associated translation equivalence ... Formal correspondences arouse hopes of semantic or functional equivalence. Such hopes are often fulfilled in related languages ... (p.9)

Initial syllables, the left part of the word and word length are important, just as reported by Neisser (1967 p.109) and Ecke (2001 p.91). For example, the second most popular choice for "smälta" is "smell", chosen by 26.8% of subjects, who clearly place more importance on the left side of the word and initial *sm-*. The third choice (19.5%) is believed to be made based on context: since it says "fyllningen var god" ("the filling was tasty/good"), the subjects believe that taste is under discussion and infer: "The chocolate did not taste a lot, but the filling was tasty". "Smart" is not a popular option despite word-initial *sm-*, probably because many interpret it as an adjective ("clever") rather than the verb ("sting").

4.3.1 German-speaking subjects' performance

Special attention should be given to the answers of German-speaking students, who have generally performed among the best in the test, as 11 of 13 items (except II-7 *blek* and perhaps II-9 *kryphål*) have formal and functional equivalents in German. Most mistakes have been made for the differing item, *blek*, where the most popular alternative is "bright", based on the context cues, since it is a property of the "(winter) sun". It is the only item on the list where the correct answer is not chosen by the majority.

However, surprisingly many German-speaking students did not choose the correct answer even where a native-language cue was present. For example, 8 speakers of German (1 in Group I, 3 in Group II, and 1 in Groups III, IV, V and VI) chose wrong answers to item 1, *blicka*, even though there is a German cognate ("blinken") and despite the fact that they indicated high values for the last item in Part I, *ögonblick*.

Similar mistakes are made for item 2, *smälter*, where 11 German-speaking subjects from different groups choose "taste" (8 people), "smell" (2 people) and "smart" (1 person) despite the presence of the cognate "schmelzen".

10 German-speaking subjects chose wrong answers to the item 11, *nöden* (German *die Not*): "nowadays" (5 people), "notion" (4 people) and "night" (1 person). Here, the amount of

syllables appears to play a role, although according to Levenshtein distance, the word “nöden” is closer to “need” than to “notion”.

As many as 13 people with German as their native language chose wrong alternatives to the item 13, a deceptive cognate, *lida* (English *suffer*, German *leiden*). Of them, 1 person chose the contextually justifiable alternative “loathe” (“The patient loathes or hates the pain he or she has to go through”). 4 chose grammatically unsuitable *lid* (which is a noun, and a noun cannot be preceded by the modal “måste”). 8 chose the English “false friend” *lead*.

Minor mistakes have also been made by some German-speaking subjects for items 3, 4, 5, 6, 8, 10 and 12, but the space limit does not allow a more thorough discussion. Suffice to say that these minor mistakes confirm the propensity of German-speaking students to choose English as an instrumental language.

Obviously, the fact that English is the language of instruction and that the similarity judgements and multiple choice task concentrate on English and Swedish is an important factor in conditioning this choice. Yet it is remarkable that some students disregard the linguistic information from their mother-tongues. This is, however, consistent with the finding already confirmed by several researchers that learners often tend to rely on one or more of their L2 than L1 (see Cenoz 2001 p.9).

De Angelis and Selinker (2001) explain such phenomenon, with reference to production, by the fact that “learners do not want to sound as if they are speaking their native language” (p.56). They even suggest a cognitive mode called “foreign language mode” (ibid.). Hammarberg (2001), too, considers “foreignness” an important factor, although he connects activation of L2 in learning of L3 with a different language *acquisition mechanism* for L2 and L3 as opposed to L1 (pp.36-37). Whichever motivation is most pertinent in accounting for the choice of English as a linguistic reference, the present study seems to clearly illustrate that a closely related mother-tongue will not always be activated as the transferable linguistic knowledge, and L2 may be used instead. It also proves that it would have been unwise to exclude German participants from the analysis of the results merely by virtue of the fact that their mother-tongue is similar to Swedish, is more perfectly acquired than English and could therefore be assumed to be a more likely candidate for instrumental language.

4.3.2 English-speaking subjects

Only 7 English-speaking subjects (from USA, Ireland and Australia, plus 1 Greek-English bilingual) have participated in the study. Therefore, one cannot draw conclusions as to difference between relying on English as L2 or L1, although the logical consequence of the previous sections is that there should be such difference, at least because people who speak English as L2 are “experienced learners” (cf. Cenoz 2001 p.9).

Formally, however, the answers of the English-speaking subjects do not vary in any drastic way from answers of the majority of other students. To sum up the results for Part I as well, same general trends of similarity judgements for words with intermediate similarity positions seem to be hold: similarity values appear to be generally low across different word classes, prototypical sense and subordinate/superordinate relations are largely disregarded, and deceptive cognates are not recognised. More research involving equal proportions of students with English as L1 and L2 is needed in order to establish the important differences.

4.4 EuroCom

The results yielded by the form can be applied to discussion of an existing programme for teaching similarities between languages to facilitate acquisition, the EuroCom project. The first proposal for this programme, striving for the European intercomprehension, was made already in 1996. A number of publications have appeared since then, and the project received development, particularly its Romance module.

EuroCom undertakes to teach recognition of similarities methodically by using seven analysis stages, which they term “seven sieves”. Familiarity and recognition is thus enabled by

looking at: internationalisms, language group vocabulary, regular sound correspondences, spelling and pronunciation, syntactic structures, correspondences between morphosyntactic elements, and finally, Latin and Greek affixes (“eurofixes”) (Grzega 2005 pp.3-13). The aim is to achieve a high degree of receptive knowledge in a related language, with the focus on written text (Klein et al NA).

As it can be seen, such approach is very surface-oriented (cf. 2.3). All the “sieves” teach strategies on how to draw parallels between formal characteristics of the words on different levels, from the phonetic to the syntactic, yet no explicit discussion of the semantic dimension is made. The very method itself is based on comparative and contrastive description of languages. And yet the tests of word recognition in the Romance module have yielded positive results: target meaning of tested words was inferred correctly by more than 80% of the subjects.

The fact that such high threshold was reached could be due to the leniency in grading, as described by the authors: “The aim of these tests was not to deliver an accurate translation of the text. Instead, ‘gaps’ were acceptable if they could be filled with an invented word, as long as the sense and the meaning of the entire text were rendered. Accordingly, during marking, attention and grading concentrated on the keenness to experiment when translating the text” (Klein et al NA).

Besides, the ability of speakers of related languages to infer the meaning of words has been suggested to be significant even with no prior instruction. Ellegård (1976), who has tested a native speaker of Swedish with zero competence in English for recognition of 8000 most frequent English words from the Thorndike-Lorge count, has found that 20% of words could be inferred (p.196)²⁵. The author of the present paper has not come across a similar estimate for the Romance language scene in Klein’s et al (NA) article, nor an account of the role of deceptive cognates by EuroCom.

While the strategies for word recognition developed by EuroCom are undeniably valuable, they still strike the author of the present as insufficient in the light of her study. The subjects who filled in the form with the similarity judgements and the multiple choice task normally did not seem to award low similarity values on the sole basis of formal dissimilarity, but instead with reference to semantics and function. The recognition of more complicated items, such as *vård* – *worth* and *ögonblick* – *blink of an eye*, of course, could be improved with the help of the third and fourth “sieves”. But unless the underlying similarity, such as categorical membership and superordinate/subordinate relations could be noticed, will the similarity values for items such as *slå* – *slay* (category of aggression/attack/harm), *krav*–*crave* (strong intention or impulse to get something) and *mat*–*meat* (meat is a kind of food) increase?

As has been said in section 2.3, the subjects’ problem is not the lack of competence, but inability to use it when and as needed. And as Kellerman and Smith (1986) asserted, “structural identity not a sufficient condition for transfer to occur” (p.2). EuroCom teaches to reveal and establish structural similarity and expects assumptions of semantic equivalence to follow. If they do, it is probably because the subjects have been taught to connect formal similarity with semantic and functional one. The tests might have also been constructed in a way that only non-deceptive cognates were present. However, faced with real multi-language situations, the subjects will soon understand that besides true and deceptive cognates, there are words with intermediate degree of similarity that can be helpful – or confusing, if total semantical similarity is routinely assumed.

For these reasons, it is the author’s belief that the semantic dimension of EuroCom needs to be revised and given much more attention if real and strong results in the real language environment are to be achieved.

4.5 Main Findings

In the course of the present studies, the following has been established.

1. Students tend to rely too much on the differences stemming from their metalinguistic knowledge. Thus, the difference in grammatical meaning considerably lowers overall similarity value, even

²⁵ Ellegård provides no further information as to the format of his test, so it remains unclear whether there was the possibility of inferring from the context.

when the class a word belongs to can be changed through conversion, i.e. when a word has an identical form as a verb and as a noun.

However, the similarity values are only decreased when the students have been trained to recognise different word classes. In cases when grammatical differences are not as expressly obvious, and more training is required to improve metalinguistic awareness, students commonly tend to see high degree of similarity in word pairs (often even higher than expected).

Of course, low similarity values can also be attributed to the nature of the task, when the students have been asked to rate similarity or difference without having certain criteria to consider. It can be assumed that in a comprehension situation, the students will still consider cognates useful even if they vary across classes, as they did in cases where the grammatical differences were not seen. As Kellerman (1986) noted, "It may ... be difficult to extrapolate directly from the tasks of formal elicitation procedures (e.g. acceptability judgements) to predictions of language in use" (p.36). Recall that in the introduction, Ringbom (2006) has been cited, who has shown that all similarities that can be perceived by students are constantly beneficial to learning. Besides, Haskell's (2001) observation that transfer experiments normally do not show transfer has also been considered (cf. 2.3).

The conclusion that can be drawn from this, however, is that the metalinguistic knowledge, although it may serve its purpose in other spheres, can be a block on the way to seeing similarities and as a result may be a hinder to the subsequent transfer. One possible way of resolving this situation is by teaching for transfer and introducing the intermediate degrees of similarity to students as potentially facilitative.

2. There is a L2 effect even in cases when the students' mother tongue (German) is as closely (or perhaps even more closely) related to Swedish as English. Although German-speaking subjects generally score better on the multiple choice task and often tend to award higher similarity values than other students, surprisingly many of them have made many mistakes in cases where cues from their native tongue are present. This confirms the previous findings that what the students lack is not the sufficient knowledge – or competence – to establish similarities and engage in transfer, but the ability to use it accordingly (cf. 2.3). The knowledge of a foreign language, on the other hand, can compete very successfully with mother tongue for the place of the instrumental language (cf. 4.3.1).

3. It has been predicted that a certain level of proficiency needs to be achieved before the students dare to engage in transfer (see 3.3.1). This appears to be generally true, as the results sometimes indicate that Level I students do not dare to award high similarity values in case of uncertainty. As an extension of the influence of proficiency on the judgements, Level II students generally tend to make more uniform decisions. Often, they unanimously classify the items which are seen as having intermediate similarity value by the author towards the negative end of the continuum, most probably with reference to denotations while disregarding underlying similarities. Thus, just because the decisions among Level II students are more uniform does not mean that they always correspond well to the expected similarity ratings.

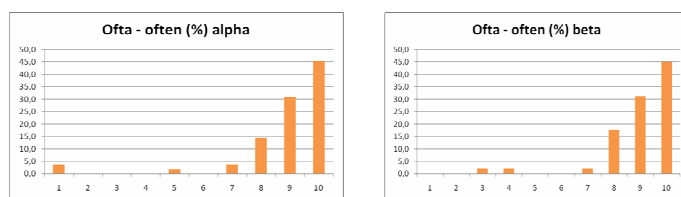
Vosniadou and Ortony (1989), too, have reported that transfer is more common to groups with a bigger (or better developed) knowledge base: "...for between-domain analogies access appears to be less of a problem for adults and experts than for children and novices" (p.9). On the one hand, this is consistent with the finding that some word pairs have received higher values from Level II students than from Level I students. However, Level I students exhibit an uncanny ability to see similarities in context of the items that are routinely considered as deceptive cognates by educators and lexicographers.

Thus, in some cases, Level I students are of the same opinion where Level II subjects weigh a number of possible alternatives. This is particularly true of items that are considered to be "false friends" in production but may actually help infer the sense in comprehension (cf. section 3.4.3 and Haskell's (2001) statement about the usefulness of indirect knowledge). Level I students

have not yet developed sensitivity to the functional differences and connotations, nor do they approach a situation with preconceived notions about it. In cases where the words commonly classified as deceptive cognates actually approximate each other, Level I students are much more open to seeing similarities than those studying at Level II. While the former ones should be advised of the sense distortions where the deceptive cognates are used in production, the beginners' openness to transfer is something that one could and should learn from.

4. No significant difference between alpha and beta versions of the tests has been detected. The order in which the subjects are presented with the sentences does not affect similarity judgements. This can be illustrated by the histograms for the word pair *ofta* – *often*.

Either the lexical similarity judgements are non-directional, or, regardless of the order of the presentation, the students use the Swedish word as a subject and the English word as a referent. However that may be, the order of presentation, a serious consideration in form design, does not seem to have any influence.



In some other cases, of course, where overall judgements are distributed more evenly (i.e., variation of opinions is greater), alpha vs beta comparison yields different proportions. However, in such cases, differences are due to other factors, such as Level I vs Level II performance or group results, and not the order of sentences.

5. The results of the speakers of the same language sometimes vary greatly. When small language groups are involved, as is the case in the present study, group similarities are hard if at all possible to observe beyond individual variation.

For example, the similarity value for item 16, *grave*, was rated as 4 by one Spanish-speaking student, and as 98 and 88 by two other speakers of Spanish in Group I. Since there are natural variations in instruction among various student groups, the variation can be even greater when students of the same linguistic and cultural backgrounds from different classes are compared. To continue with the same example, Spanish students from Group II suggested ratings of 23 and 32, and those from Group III, 24, 6 and 55. Another Spanish-speaking student from Group IV, however, agreed with one of the respondents from Group I to the millimetre, indicating the value of 88.

The positive implications of this finding, which due to the research's small scale appears to deny the well-established similarity between speakers of the same background, is that while analysis for language groups with less than 5 representatives was not possible, such analysis would probably not have yielded one certain result in any case. Such data seems to support Kohn's (1986) opinion that only an individual learner, and not group performance, should be analysed (see 3.6).

6. Similarity values that are lower than expected may be explained also by the fact that some students may have expected to have been presented with deceptive cognates. After all, speaking from impression, the attention on similar words in instruction seems to be normally concentrated on the semantic differences. While it is important to teach students to avoid deceptive cognates in production, in comprehension, peripheral and oblique knowledge provided by them may sometimes turn out facilitative (cf. 3.4.3).

5. Conclusion

5.1 Answers to the research questions

The current discussion has started with a brief summary of transfer studies within the general education framework and in linguistics. It has been stated that while transfer occurs on a daily basis, and is extensively employed by beginner learners of a foreign language, it is difficult to condition in the instructional settings. The reason for this is that students perceive similarity differently and may concentrate on surface differences, ignoring the important underlying similarities. Where do the judgements of the theoreticians and the students cease to coincide?

Practically all of the test items in the form employed in the present study have been formally similar and historically related. However, to see the historical connection, a certain degree of competence in comparative and contrastive linguistics is required. Besides, such pairs vary greatly in degree of similarity. For these reasons, no single definite conclusion can be made to account for the ratings of historically related pairs.

More often than not, it is not the lack of correspondence in form, but the differences in meaning and function that lead the subjects to indicate low similarity values, and with this, are likely to be prohibitive to transfer. The differences appear to be overrated and the metalinguistic or “dictionary knowledge” is overrelied upon.

Particularly the word pairs with intermediate similarity values, i.e. similar in some respects yet different in others, appear problematic. Categorical membership, superordinate/subordinate relations and similar prototypical sense in a word pair do not appear to be noticed by many. Occasionally near-total formal, semantic and functional equivalence for such items is assumed by Level I students due to the limited knowledge base they so far possess. In the case of the more proficient Level II students, the combination of functional, grammatical and connotational differences often results in similarity ratings that acknowledge no similarity at all even for items that could logically receive an intermediate similarity rating.

This confirms the opinion that it is beginners that profit from the similarities most. They, yet unaware that some items are commonly classified as deceptive cognates due to sense distortion in production, are capable of registering essential similarities that Level II students disregard. In many cases they appear to rely more on the context at hand and less on the “dictionary” knowledge.

However, another opinion, cited in section 3.3.1, is also found to be true, namely that a certain proficiency may need to be reached before transfer can occur. In this case, students’ own perception of their competence rather than their actual competence plays a major role. For many, lack of confidence in valid similarity leads to very low ratings. Others start to employ strategies such as placing the marks centrally so as to approach the “correct” answer as close as possible. Among other things, it can lead to greater variation of opinions among Level I students, although in a few cases, there is equally little agreement among Level II students.

While the opinions of the subjects studying at Level II tend to be more uniform, they do not always correspond better to the expected similarity judgements. In some cases, the ratings of Level II are more “polar”, with values clustering at both extreme ends of the continuum where Level I students’ indications are spread rather evenly.

All the students in the study have shown themselves to be rather proficient at distinguishing grammatical meanings. From their answers and notes on the margins, it transpires that they place great importance on such differences whenever they detect them. This is a case of what the author sees as exceeding concentration on surface similarity and possible inability to see the same sense. However, there are grounds to suppose that while such differences have been given weight in similarity judgements, the similar words across different word classes could still be employed in inferring the sense of an unfamiliar word in the new linguistic environment.

The study does not show good recognition of deceptive cognates. When the near-zero values are provided, the impression is rather that the students are familiar with and aware of the particular “false friends”. Many high similarity ratings, which are difficult to deem otherwise than fallacious, are also given, regardless of the surrounding context.

The order of the presentation of words, however, which has been a significant issue during the early stages of form design, does not affect the results in any way. This leads the author to conclude that either the lexical similarity judgements are non-directional, or, since the subjects have a greater proficiency in English than in Swedish, the Swedish word always acts as a subject and the English word as a referent regardless of the order of their presentation.

In retrospect, asking the students to rate the semantic similarity alone or at least with less attention given to form and function could yield sharper and more definite results, as well as help diminish uncertainty in the analysis, where attributing the values to one factor or the other has been problematic.

5.2 Other findings

To sum up, as has been suggested in section 2.3, the existence of formal and even semantic similarity alone is not a sufficient condition for creating circumstances favourable to transfer. The results show that previous knowledge, metalinguistic or “dictionary” knowledge, ambiguity tolerance and confidence all play an important role.

Thus, while German-speaking students have the cognates in their mother-tongue necessary to answer nearly all multiple choice questions correctly, they sometimes fail to do so because, as it appears, they rely on English as an instrumental language (certainly, the form design in a way presupposes them to do so). As was hypothesised in section 3.3.1, some Level I students do not appear to be confident enough to see the similarity and, being unsure, they indicate that there is none. This feeling of insufficient competence, also often reflected in their low indication of fluency in Swedish, in some cases even stops them from making similarity hypothesis although the context (often containing cues such as other formally similar words) points at it.

In a brief review of the method employed by the EuroCom project, same finding applies. While more data is needed, the comparison clearly points at the fact that more attention should be paid to different degrees of similarity rather than the formal side of the words. Total semantic equivalence cannot be assumed where formal similarity is cited.

It has been said that frequently, transfer experiments fail to show transfer. Indeed, in the present research, nearly a half of the items have received values below expectations. However, nearly a quarter corresponds well to the expectations and another quarter actually exceeds the expected ratings. Perhaps this is because the expectations are subjective and thus flawed. However, they have been made from the point of view and/or experience of a language learner in a similar position to the subjects in the study, a linguist and a potential language teacher. Therefore, a way to reach the resolution of the difference in perception may be more appreciated than the criticism of subjectivity.

5.3 Practical implications

Can the difference between students’ perceptions and teachers’ and linguists’ designs be breached? The viable way to do this appears to be teaching for transfer, with special attention paid to the underlying similarities, since they have been most problematic in noticing.

The students should be made aware that besides total similarity and lack thereof, there are intermediate stages that can allow approximate understanding. Such understanding minimises the effort necessary for memorisation of the new information and allows to acquire a sufficient base within shorter time limits. Once this base exists, difference in connotations and functions can begin to be made.

For theoreticians, it is also important to keep an open mind, alike to that of a beginner, and not immediately dismiss deceptive cognates in production as prohibitive to approximate comprehension.

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Appendix 1. Form²⁶.

To answer the questions, *concentrate on the underlined words*: the sentences are provided to show how these words may be used, but you *do not need to understand the whole sentence*.

This form is not meant to assess your knowledge! Guessing is encouraged ☺

I. What do you think: are the underlined words in English and Swedish much the same, quite different, or somewhere in between? Put a cross on the scale between totally different and absolutely the same!

Please note that the sentences are not translations of each other!

1. Jag köper ofta Aftonbladet och ibland Lantliv och National Geographic.
It is often useful to make detailed notes after important meetings.

totally different _____ absolutely the same

2. She would be at the station just in time to catch the train.
Var noggrann med att boka resan till rätt station.

totally different _____ absolutely the same

3. Dinkel passar utmärkt att baka bröd med.
Apart from milk, they seemed to live largely on bread and baked beans.

totally different _____ absolutely the same

4. I'm just about set to realise a dream.
Det finns väl knappt något större man kan drömma om.

totally different _____ absolutely the same

5. När jag mår bättre försöker jag bjuda igen.
Has it become worse or better since you first arrived here?

totally different _____ absolutely the same

6. Urban Romanians are burdened with freezing flats and murky streets.
Mörkret breder ut sig över vårt nordliga land och ska skingras med ljus och sång.

totally different _____ absolutely the same

7. De första snöflingorna började falla.
Slowly she raised her hands, unpicked her hair, and let it fall free.

totally different _____ absolutely the same

8. After money, time is what the masses crave most.
Det är nästan ett krav att barnen ska kunna läsa när de börjar skolan.

totally different _____ absolutely the same

9. Från alla växter kom en stark, frisk doft -- allt var rent efter regnet.
As they reached the mouth of the tunnel, fresh air drifted in and Devlin took a deep breath.

totally different _____ absolutely the same

²⁶ The formatting is modified compared to the original one, where the continuum is 10 cm long. This is the alpha-version of the test, the contents of which is the same as in the beta-version, where the sequence of Swedish and English sentences in Part I is reversed.

10. They were really bad mistakes on my part and they cost us dear.
Det blir en dyr läxa för den unge att upptäcka följderna av skatteskulden.

totally different _____ absolutely the same

11. Är du trött? -- Lite. -- Ska jag bära dig på axlarna?
Bear in mind that money is one of the main causes of marriage break-up.

totally different _____ absolutely the same

12. Punishments for killing the king's deer were severe.
Ibland kan ett djur betyda än mer än sällskap och motion.

totally different _____ absolutely the same

13. Vad som var nästan omöjligt att stå ut med var att han luktade fruktansvärt ur munnen.
I know next to nothing about wild flowers.

totally different _____ absolutely the same

14. It was a sight worth dwelling on, but not much use for present purposes.
Hon var inte värd att bli älskad, så måste det vara.

totally different _____ absolutely the same

15. Ja, det har flyttat hit folk från Stockholm, Sundsvall, Örebro och Västerås.
The authorities were most helpful and the local folk very sociable.

totally different _____ absolutely the same

16. If he went against this young man, he would in effect dig his own grave.
Mormors grav fanns i Vallmsta och mammas på begravningsplatsen vid Malstugan.

totally different _____ absolutely the same

17. Telefonen pipar till, han svarar, det blir ett ganska långt samtal.
It was not her harmonica: it was higher pitched, a peeping sound like a poor recording.

totally different _____ absolutely the same

18. I was so glad to get your letter.
Hon verkar vara en glad person, men ser lite stressad ut.

totally different _____ absolutely the same

19. Polisen i Linköping behöver hjälp i sökandet efter dubbelmördaren.
So, the situation in that is quite serious and it behoves us to take it seriously.

totally different _____ absolutely the same

20. St George is seen to slay a twin-headed dragon.
Jag har själv tre barn som sett pappa slå mamma.

totally different _____ absolutely the same

21. Förvara de torra bladen i täta burkar, gärna av mörkt glas.
Remove any tight clothing or jewellery because swelling could occur.

totally different _____ absolutely the same

22. The actual capability of the weapons you have can only really be found out when you use them.
Sedan dess har inte vaccinering varit aktuell eftersom sjukdomen utrotades på 80-talet.

totally different _____ absolutely the same

23. Han tvingade också sitt offer att hålla upp en påse, som han stoppade pengarna i.
Her voice was abrupt and she didn't thank him for the offer.

totally different _____ absolutely the same

24. Keep any sliced meat in the refrigerator until it is required.
Det är inte svårt att hitta nyttig och billig mat.

totally different _____ absolutely the same

25. Elisabet är mor till sönerna Viktor och Oscar, fem respektive åtta år gamla.
Both volumes of the Dictionary passed the censorship, in 1845 and 1846 respectively.

totally different _____ absolutely the same

26. Herkules ledde då två floder genom stallet och på ett ögonblick var det rensat.
He went from frozen stillness to liquid and menacing movement in the blink of an eye.

totally different _____ absolutely the same

II. Multiple choice: what does the word mean?

- Hon mötte hans blick utan att blinka.
a) blink b) back off c) respond d) blankly
- Chokladen smälter ej i munnen - men fyllningen var god.
a) smart b) smell c) melt d) taste
- Hushåll får högre utgifter när priset stiger på olja, diesel och bensin.
a) butter b) hire c) wood d) oil
- Det är ännu oklart om ett eller flera vapen användes vid attacken.
a) coat of arms b) weapon c) vapour d) violence
- Är det alltid så viktigt vem som vinner? Det roliga är väl att spela.
a) return b) lose c) vain d) win
- Sashimi: tunna skivor av rå fisk.
a) ray b) raw c) red d) real
- En blek vintersol över staden som är inbäddad i ett tunt snötäcke.
a) cold b) bleak c) bright d) unimpressive
- De hägkomster han från sin sjukbädd dikterade för hustrun följer här.
a) smoke weed b) sea bottom c) sickbed d) sink
- För så länge det finns en plan, ett kryphål, en flyktväg så ordnar det sig.
a) idea b) way out c) loophole d) creepy hall
- Jag födde mitt barn på ett iskallt golv med en städerska som tillfällig och motvillig barnmorska.
a) isolated b) ice cold c) ground d) wooden
- Hur ska vi klara oss utan dig, du som var vår solstråle och räddare i nöden.
a) night b) notion c) need d) nowadays
- Jag visste inte om jag skulle börja med att binda hennes händer eller fixa en munkavle.
a) block b) bring c) bind d) bend
- Patienten måste lida av outhärdlig, konstant smärta och vara bortom allt hopp.
a) suffer b) lead c) lid d) loathe

III. Please provide some background information!

1. Which country do you come from? _____

2. What is your mother-tongue (please write two if applicable): _____

3. How would you rate your proficiency in English on this scale?

limited 1 _____ 5 fluent

4. How would you rate your proficiency in Swedish on this scale?

limited 1 _____ 5 fluent

5. What level are you studying Swedish at currently?

- 1) I am a beginner, and I have started this term
- 2) I study at the beginner level, but I have studied some Swedish before
- 3) Level 2
- 4) Other

6. Have you studied any foreign language other than Swedish during the past two years? If yes, please specify which language. Please also rate roughly your proficiency in it.

Thank you very much!

Appendix 2. Formal similarity of all word pairs in Part I (including basic forms) and expected similarity ratings

Nr	English	Swedish	Formal Similarity (Levenshtein distance)	Expected similarity rating	Comment
1	often	ofta	0.6	91-100	same word class
2	station	station	1.0	81 and above	same word class, close meaning and function; important difference in pronunciation
3	baked	baka	0.6	81 and above	different word classes, but semantically close verb can be easily derived
	bake	baka	0.75		initial word form
4	dream	drömma	0.5	81 and above	different word classes in the example sentence, but the required class can be formed through conversion
5	better	bättre	0.5	91-100	same word class and form: adjectives in the comparative degree; very similar functionally
6	murky	mörkret	~0.43 (0.4285714)	51 and above	Swedish word more frequent than the English cognate, difference in grammatical meaning
	murk	mörk	0.75		closer word forms (noun – adjective)
7	fall	falla	0.8	61-70	competing synonym in Swedish (“ramla”)
8	crave	krav	0.6	31-40	similar prototypical meaning (strong intention to get something)
9	fresh	frisk	0.6	31-40	in many cases, a closer competing Swedish synonym (färsk); “frisk” usually translated as “well, healthy”
10	dear	dyr	0.5	31-50	same sense of “expensive” but is not used as address of form of endearment in Swedish
11	bear	bära	0.25	11-20	same prototypical sense, although mostly metaphoric use in English
12	deer	djur	0.5	11-30	historically related (once virtually the same in form and meaning); meaning narrowed down in English; currently superordinate/ subordinate relationship
13	next to	nästan	~0.28 (0.28571427)	31-40	the English item more often used in prepositional sense, yet here meaning “almost”
14	worth	värd	~0.19 (0.19999999)	41-60	similarity difficult to establish unless acquainted with historical/comparative linguistics
	worth	värt	~0.39 (0.39999998)		closer word forms
15	folk	folk	1.0	91-100	very close in form and meaning
16	grave	grav	0.8	81 and above	close in form, meaning and function, minor regular difference in pronunciation

17	piper	peeping	~-0.29 (0.28571427)	41-50	Onomatopoeic words, the English one having another frequent sense (looking secretly)
	pipa	peep	0.25		initial word forms
18	glad	glad	1.0	71-80	similar in form and meaning yet different in use (not functional similarity)
19	behoves	behöver	~-0.71 (0.71428573)	41-50	high-frequency Swedish word and a similar low-frequency English cognate
20	slay	slå	0.5	11-30	same category membership or prototypical meaning (agression/attack/harm)
21	tight	tät	~-0.39 (0.39999998)	11-30	same prototypical sense (parts or elements close together)
22	actual	aktuell	~-0.57 (0.57142854)	0-10, 91-100	deceptive cognates (it is expected that many students will not be able to infer that from context, while others will know them as such)
23	offer	offer	1.0	0-10, 91-100	deceptive cognates (it is expected that many students will not be able to infer that from context, while others will know them as such)
24	meat	mat	0.75	21-30	historically related (once virtually the same in form and meaning); meaning narrowed down in English; superordinate/subordinate relationship
25	respectively	respektive	0.75	51-60	Romance borrowing; grammatical difference, different amount of syllables
	respective	respektive	0.9		closer word forms
26	blink of an eye	ögonblick	~-0.06 (0.06666666)	71-80	a compound consisting of two elements, the meaning of which is known to subjects; difference in grammatical use, reversed order of presentation
	blink	blick	0.8		component similarity
	öga	eye	0.0		similarity difficult to establish unless acquainted with historical/comparative linguistics

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