

Gingerly Studied Transfer Phenomena in L3

Germanic Syntax.

**The role of the second language in third language
acquisition.**

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Gingerly Studied Transfer Phenomena in L3 Germanic Syntax.
The Role of the Second Language in Third Language Acquisition.

Een wetenschappelijke proeve op het gebied van de Letteren

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To all my former and future students of L3 Swedish

The idea for this project started almost 20 years ago, when I started to teach Swedish as a foreign language in Sweden. At that time I did not know anything about linguistics and especially not about L3 acquisition and transfer. However, I spoke German and therefore I knew that the verb is placed in the second position in a main clause, just as it is in Swedish. I became very irritated when my native German students just did not manage to make use of the German structure when learning Swedish. On the contrary, some of my native English students got the structure correct from the beginning. This was a mystery to me. The years of teaching went on, and I began to see a pattern. Native German speakers had a lot of English lexical items in their Swedish, and surprisingly some of my English native speakers produced Swedish with a German accent and inserted some German words into the Swedish sentences. I assume that this moment of insight was the reason I started studying linguistics in Lund, Sweden. One of the most important people for me in Lund was Christer Platzack and he was also the one who helped me come to the Netherlands and start this project.

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CHAPTER 1.

1 INTRODUCTION

In the last decades there has been a boom in the study of the acquisition of a third language (L3). These studies often focus on how the L3 relates to the first language (L1) and the second language (L2) respectively. There is ample anecdotal evidence to suggest that the L2 influences the learning of an L3: “I don’t know why, but when I was learning Swedish, my old and forgotten school-French that I learnt at school popped up, and I inserted some French words into Swedish sentences”. We all know stories like this. This thesis aims to contribute to the scientific study of the role of the background languages (both the L1 and L2) when we are learning an L3.

Studies devoted to the learning of an L3 have obtained different results. There are studies supporting the hypothesis that all background languages have an impact on the L3, there are studies that show that only the L2 plays a role in the L3 acquisition process, and there are studies that reach the conclusion that the role of the background languages is negligible since the learning of a new language always passes through fixed stages, independent of the learner’s language history. In Williams and Hammarberg’s (2009 [1998]) case study on L3 vocabulary acquisition they discovered a general tendency to activate an L2, rather than an L1, when producing L3 Swedish. They attributed a special status to the L2 in the L3 acquisition process and Hammarberg (2001) explains the L2 status factor as “a desire to suppress L1 as being ‘non-foreign’ and to rely rather on an orientation towards a prior L2 as a strategy to approach the L3” (2001: 36-37). The L2 status factor hypothesises that since an L2 is activated in L3 acquisition (to a higher degree than the L1) it will be the preferred source for transfer which, in some cases, (i.e., depending on the language combination) will facilitate, and in other cases complicate, the L3 acquisition process.

My research question is whether the L2 has an impact on the L3 acquisition of syntax.

More specifically, I test the L2 status factor hypothesis on various syntactic structures in L3 Dutch, German and Swedish. Furthermore, I test the L2 status factor hypothesis both at the initial stage and at an intermediate proficiency level of the L3. I suggest that the L2 status factor hypothesis can contribute to our understanding of the L3 acquisition of syntax.

1.1 Identifying the start of L3 acquisition research

While the study of L2 acquisition has a long tradition, the study of the acquisition of subsequent languages has a much shorter history (cf., Vildomec 1963 for an exception). Until the 1980's, most studies of the acquisition of language X (i.e., L2, L3, Ln, etc.) were carried out as L2 acquisition studies. In some (early) error analyses a third language is mentioned when the influence did not come from the subject's L1. Studies concerned with speakers of minority languages can be seen as the unintentional precursors of today's L3 acquisition studies. In these studies bilinguals were compared to monolinguals in the acquisition of a foreign language. The role of the bilinguals' non-native language was referred to when their errors could not be traced back to the L1 or intralingual transfer and their behaviour differed from that of the monolinguals' (cf., Lindemann 1998: 159f.). Early language acquisition studies in which the L3 was taken into account showed evidence of negative aspects of foreign language interference in acquiring an additional language (e.g., Hombitzer 1971, De Vriendt 1972). Some years later however, the contrary was maintained and the positive effects of multilingual acquisition were emphasized (e.g., Chandrasekhar 1978, Vogel 1992; for a more exhaustive overview see Hufeisen 1998). One of the first true L3 acquisition studies is the one by Stedje and Biedermann (1975) and Stedje (1977), in which the acquisition of German as an L2 is compared to the acquisition of German as an L3. Stedje found that L3 learners were faster and possessed a higher degree of metalinguistic awareness which facilitated the acquisition process (cf., Thomas 1985, 1988 for similar findings).

Nowadays a lot of the research carried out on L3 acquisition has been devoted to the role of the background languages, mostly showing that all background languages have an impact on acquiring the next one. Various factors have been discussed to explain the role of both the L1 and L2(s) in L3 acquisition. A survey of the role of background languages is given in chapter 2.

1.2 Defining the labels L2 and L3

Following the mainstream literature, I will use the term L3 in this thesis as an umbrella term for any non-native language currently being learned after one or more previously acquired L2s. This was originally proposed by Hammarberg (2001, 2010):

In order to obtain a basis for discussing the situation of the polyglot, we will here use the term L3 for the language that is currently being acquired, and L2 for any other language that the person has acquired after L1. It should be noted that L3 in this technical sense is not necessarily equal to language number three in order of acquisition. (Hammarberg 2001: 22).

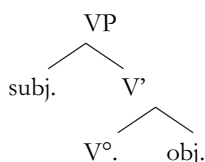
From this definition, it follows that the L2 label may comprise more languages and that the proficiency and recency of acquisition of these languages may vary. Furthermore, even the label L1 can include more than one language, as for instance, in the case of simultaneous bilingualism. L3 will be used in this thesis to describe the language that is currently being acquired after an L2. This definition makes it possible to relate to other

1.3 Generative approaches to language acquisition

Language acquisition is studied from different theoretical paradigms. The current studies on L3 acquisition of syntax are all based on a generative approach to language acquisition.

Our innate prerequisite universal grammar (UG) is held to consist of an abstract fixed set of principles and parameters (e.g., Chomsky 1981). While the universal principles are the same for all languages, the parameters account for cross-linguistic variation between languages. One principle is the projection principle which states that a phrase is a projection of a head. Any head (X°) project into a constituent (X'), that is, its complement, and this constituent in turn projects into a maximal projection (XP), as illustrated in figure 1.

Figure 1, phrase structure



In figure 1 a standard derivation of a VerbPhrase is given, the head V° (the verb) projects into its complement, which projects into the maximal projection (the VP). The head directionality parameter is here set to option 'head first' (i.e., the V° precedes its complement). The head directional parameter is set to 'head first' languages such as

English and Swedish, while in languages such as Turkish; it is set to 'head last'. Other parameters are responsible for other cross-linguistic variation phenomena among languages. For instance, the verb-second (V2) parameter generates word order differences between V2 languages and non-V2 languages, as in (1a-c).

- 1.a ENGLISH Now Ginger eats.
- 1.b FRENCH Maintenant Ginger mange.
'Now Ginger eats.'
- 1.c GERMAN Jetzt frisst Ginger.
Now eats Ginger.
'Now Ginger eats.'

In English and French the V2 parameter has a negative value and the finite verb can remain in its position (cf., (1a-b)) when the clause is introduced by another constituent than the subject. In German, on the other hand, the V2 parameter has a positive value; the verb is attracted to the second position in the clause, and thus generates subject-verb inversion when the clause is non-subject initial. In later versions of this generative approach (Chomsky 1995 and later) one does not encounter the term parameter (which can only be + or -). Instead, language variation is explained with strong and weak features. Applying this to the examples (1a-c) we will find a strong feature that attracts

the German finite verb to the second place, a feature that is specified as weak in French and English.

In the structure building of the entire clause there is a distinction between lexical and functional categories. The former are, for instance, Verb Phrases (VP) as illustrated above in figure 1. Other lexical categories are Noun, Adjective and Prepositional Phrases, which are based on the words taken from the (mental) lexicon. The functional categories consist of abstract XPs that are responsible for various syntactic aspects of a clause, for instance, phenomena like tense and inflection. In L1 acquisition, the universal principles are supposed to be present in a child from the very beginning, while the language specific parameters are set when the child encounters positive evidence from the input.

The theory of principles and parameters has been adopted in L2 research and much research has been devoted to studying language specific parameters in L2 acquisition. Particular interest has been taken in whether UG is still accessible in L2 acquisition and the discussion about this matter is ongoing (see section 1.4). Before turning to the arguments for and against such an assumption, it is wise to take into account that:

UG is a theory, which has not been constructed for the purpose of explaining SLA [second language acquisition]. /.../ If it turns out that the theory is relevant in the domain of SLA, then this would be a considerably more interesting account than one in which an *ad hoc* theory is devised for the sole purpose of explaining SLA. (Towell & Hawkins 1994: 58)

Towell and Hawkins point out an important issue, namely that studies that show the unavailability of UG in L2 acquisition do not say anything about UG per se, rather, they claim that L2 acquisition is a different process to L1 acquisition.

1.4 Universal Grammar and L2 acquisition

Three alternative options have been proposed concerning the presence of UG in L2 syntax (for a more detailed outline, see White 1989b, 2003 and Schwartz & Sprouse 2000):

- (i) UG is accessible
- (ii) UG is partially or indirectly accessible
- (iii) UG is not accessible.

The question of whether UG is still accessible in adult L2 acquisition can be said to have started with the debate between Clahsen and Muysken (1986) and duPlessis, Solin, Travis and White (1987). Clahsen and Muysken argued that the interlanguage (IL) of an L2 learner is completely different from that of an L1 learner. They contended that the L2 is built on general (cognitive) learning strategies; hence, no specific language strategies are at work as in L1 acquisition. They were challenged by duPlessis et al. (1987) who, by showing that L2 learners arrive at parameter settings that resemble neither those of the L1 nor those of the L2, argued that UG is completely (and directly, rather than via the L1) available in L2 acquisition.

The first hypothesis (i) states that L1 and L2 acquisition is more or less the same process and that UG is still available to the learner. Supporting evidence is provided by, for instance, Epstein, Flynn and Marthohardjono (1996) and Platzack (1996). Schwartz and Sprouse (e.g., 1994, 1996) proposed the FullTransfer/FullAccess model for L2 acquisition, arguing that L2 learners initially resort to their L1 and with the help of UG to construct their L2 (see also Schwartz & Sprouse 2007 for a discussion).

The third hypothesis (iii) assumes that the IL of an L2 has a grammar of its own, which is not UG-constrained, in which structures evolve according to certain developmental stages. This hypothesis was already supported by Clahsen, Meisel and Pienemann (1983, the ZISA project: see also Meisel 1997 for a similar view). Bley-Vroman's Fundamental Difference Hypothesis (FDH, 1990) also emphasizes the difference between the acquisition of an L1 and an L2, where the latter is argued to resemble that of learning any new skill as an adult, for instance, learning to play the piano. Pienemann (1998) also situates his processability theory in this FDH paradigm. In this theory he states that L2 acquisition is non-UG constrained. Klein and Perdue's (1992, 1997) simple but functional IL is supposed to embrace instantiations of the essential properties from UG (see Meisel 1997 and Vainikka & Young Scholten 2006 for a discussion).

The second hypothesis (ii) is that of partial or, in some cases, indirect access via the L1, to UG. Either only certain aspects of UG are available in L2 acquisition, or the L1 makes it possible to resort to UG features that are only present in the L1 grammar. For instance, Vainikka and Young-Scholten (e.g., 1994, 1996) suggested the so-called Minimal Tree Hypothesis, according to which, the L2's initial structure is only a VP with its lexical categories transferred from the L1. The learner gradually gets the complete phrase structure with the functional categories, on the basis of the input and access to UG (see also Hawkins 2001, who assumes a bare VP at the initial state of L2 acquisition: the complete structure is later developed under L1 influence). In recent years, Vainikka and Young-Scholten (2006) have refined this hypothesis along with the development of the Minimalist Program (Chomsky 1995 and later). Here they propose an Organic Syntax Model being at work in L2 acquisition, according to which, the phrase structure is also constructed gradually. Eubank (1994, 1996) works with the same basic prerequisites. However, he, assumes that the complete L1 phrase structure (both lexical and functional) is available to the L2 learner, but all the functional projections are unspecified from the beginning. Hereby, it is possible to account for variation in the IL, which will gradually adapt to L2 specifications. A somewhat different claim is that of White (1996) who suggested that the complete L1 phrase, with all its functional specifications, is present from the beginning, and that based on L2 input it will convert into a target language phrase. However, if a specific feature is not present in the L1, the learner can resort to UG in order to construct a new grammar. Yet another suggestion is made by Beck (1998) and Eubank, Beck and Aboutaj (1997) who claim that there are features which never become specified in L2 development. Finally, there is also the suggestion that the L1 grammar defines the initial state of the L2 supported by, among others, Hawkins and Chan (1997). According to their Failed Features Hypothesis, the L1 is transferred completely in L2 acquisition, and UG is

inaccessible. Features that are not instantiated in the L1 can never be acquired (see also Hawkins & Hattori 2006, and Smith & Tsimpli 1995)¹.

1.5 Transfer in L2 acquisition

Closely connected to the issue of whether UG is accessible in L2 acquisition is the question of the L1's role in the acquisition process. The strength of the L1 impact differs in each of the studies. As seen above, L1 is argued by some to have an impact on the L2 in addition to UG (e.g., Eubank 1994; Schwarz & Sprouse 1996; Vainikka & Young-Scholten 1996; White 1996, Hawkins & Chan 1997, Hawkins & Hattori 2006). Other researchers have claimed that the L1 plays an insignificant role (e.g., Clahsen et al. 1983, Klein & Perdue 1992, 1997; Platzack 1996; Epstein, Flynn & Marthohardjono 1998; Pienemann 1998; Håkansson, Pienemann & Sayheli 2002).

Disagreement remains concerning what transfer is and which aspects of IL behaviour should be denoted by the term. According to Odlin (1989) the definition of transfer falls back on Lado's (1957) notion of transfer, which was basically an instantiation of old L1 habits in the L2. This was first criticized by Corder (1983) who claimed that the term was too technical and thus did not improve further research. Kellerman and Sharwood Smith (1986) also pointed out that the term transfer did not convey all learner strategies, such as borrowings, loans and avoidance. They therefore suggested the term cross-linguistic influence should refer to "the way two language systems interact in the learner's mind" (1986:72). Moreover, under their definition, cross-linguistic influence can be bidirectional, which means that it can be transferred from the L1 to the L2, and vice versa. It is also important to remember that transfer can be positive, when there is an overlap between the languages involved; and negative, when the involved languages display differences. This negative transfer is sometimes referred to as interference. We will simply adopt Odlin's definition: "the influence resulting from similarities and differences between the target language and any other language that has been previously (and perhaps imperfectly) acquired" (1989:27).

In principle, everything can be transferred (e.g., lexicon, discourse, semantics, syntax, phonetics, phonology and writing system; see Odlin 1989) and research into this domain has tried to tease apart which variables cause L1 transfer in L2 acquisition. The variables can be said to be, on the one hand learner based, and on the other hand language based (for a more sophisticated division and discussion, see Jarvis & Pavlenko 2008: chapter 6).

Factors that relate to the individual learner are, for instance, personality, aptitude for phonetic mimicry, literacy and age. It is a popular belief that younger is better (e.g., Odlin 1989: 137), which implies that transfer, especially negative transfer, is less common in young learners. This has been shown to be the case, especially in the area of phonology (Flege, Schiruru & MacKay 2003; but see Odlin 1989:137f. for studies showing the contrary); however, in the area of lexicon and morphology, there is no real consensus (e.g., Jarvis 1998, 2000 and Hohenstein, Eisenberg & Naigles 2006). Odlin

¹ The proposals by Hawkins and Chen, Smith and Tsimpli and Bley-Vroman are sometimes argued to be non-access proposals; however, it is implicitly assumed that the L1 grammar constitutes the initial state for the L2 and that indirect UG access is possible in this way.

(2003: 471) concludes that the age effect may “differ from one linguistic subsystem to the next” as there are also educational and societal variables that might have an impact on the behaviour of transfer.

Among the language based variables which interact with transfer, we find factors such as markedness, language distance and L2 proficiency. Markedness refers to the concept of specific language features supposed to be marked (e.g., the verb second parameter in Swedish). According to Eckman (1985), transfer of a marked L1 structure is not likely to happen; this is also found in Zobl (1987) who argues that the L2 develops from unmarked to marked properties. Language distance (or typological proximity and cross-linguistic similarity, including (psycho)typology; cf., Jarvis & Pavlenko 2008: 176) is a well studied factor in transfer research. Language distance can be defined by typology, language relatedness and, last but not least, by *psychotypology*, a term that was coined by Kellerman (1983), which refers to how close or similar the learner understands the language to be. An overall finding is that if the learner perceives the TL to be similar to the L1, the amount of transfer increases. Odlin points out that “some evidence suggests that an *objective* estimation of language distance can sometimes be misleading about the likelihood of transfer: in some cases, the *subjective* estimation of distance by learners can override an objective measure” (1989:142). The subjective estimation can further be divided into perceived similarity (something that the learner has found in the TL input) and assumed similarity (a hypothesis about anything in the TL being similar to the L1). The former is supposed to give rise to transfer of semantic concepts; whereas the latter is reflected more in formal areas in the TL, for instance syntactic properties (cf., Jarvis 1998, Ringbom 2007). As for proficiency level in the L2, there is no real consensus in the literature regarding how proficiency influences transfer behaviour. Jarvis and Pavlenko (2008: 201ff.) highlight the fact that there are many reasons for the confusion about the relation between transfer and proficiency. There are, for example, instances of transfer that cannot occur before a certain level of proficiency is reached, because if, for instance, a structure or a word is not acquired, it cannot be transferred (Odlin 1989, Ringbom 2007). Yet another factor is that of social context, that is, where and how the language is being acquired. Ellis (1994: 214) argued that in a textbook-teacher context, negative transfer is inhibited because this is a context that encourages the learner to resort to L1 norms only when it helps. Odlin (1989:144ff.) also notices that negative transfer is less common in a classroom setting, here the learners are focused, while, in an informal setting the learners are unfocused and may therefore make use of more transfer (see also Jessner 2006). These suggestions may also be explained in terms of explicit and implicit knowledge of the TL. In the classroom the learners make use of their accurate explicit knowledge (hence, no negative transfer), but when they are in other situations they draw on their implicit knowledge and they are likely to produce more transfer errors (for a further discussion see Jarvis & Pavlenko 2008).

To summarize, there are two main groups of factors that have an impact on all transfer behaviour: the learner based factors and the language based factors. The role of the latter draws attention to, among other things, the issue of language distance between the involved languages, especially with respect to subjective similarity between the languages. In the next section, where transfer hypotheses for the acquisition of L3 syntax are discussed, the same factors are of interest and play a prominent role in two of the three hypotheses.

1.6 Transfer hypotheses concerning L3 syntax

As seen in the previous section, there is a variety of factors that influence whether transfer takes place in language acquisition and what is transferred (see also section 1.4 on L2 acquisition of syntax). In studies on L3 acquisition the issue is more complex as there are multiple languages that can be transferred.

Many recent studies suggest that both the L2 and the L1 have an impact as a transfer source (see Leung 2009 for an overview). This phenomenon is often explained by a typological overlap of certain features among the languages involved; for instance, Leung (2005 a & b) found that learners of L3 French transferred from their L2 English (L1 Cantonese), whereas learners of L2 French (L1 Vietnamese) did not transfer from their L1. Leung explained this by the role of typology. The feature investigated was present in both English and French, but not in Cantonese or Vietnamese. From various studies in this area three major hypotheses have emerged: the Cumulative Enhancement Model (CEM, Flynn et al. 2004), the L2 Status Factor Hypothesis (LSFH, Bardel & Falk 2007) and the Typological Primacy Model TPM (Rothman 2010 & in press).

The CEM (Flynn et al. 2004, Flynn 2009) suggests that all previously learned languages can act as a transfer source in L3 acquisition. By default the L1 is transferred, but if the matching feature value is not present in the L1, the L2 will be the source of transfer. According to this hypothesis, language acquisition can be said to be cumulative as the learner can fall back on not only one, but all, previously acquired languages in L3 acquisition. The CEM only takes syntactic overlap into consideration, in other words, transfer is assumed to be facilitating.

The LSFH (Falk & Bardel 2010, Falk submitted) suggests that an L2 is favoured as transfer source relatively independently of the relative typological similarity or genetic relatedness of the languages involved. The L2 status factor has its origin in Williams and Hammarberg's study on L3 acquisition of the lexicon (2009 [1998]) where it was explained as a general tendency to activate a previously learned (second) language, rather than to activate the L1 in the acquisition of a third. Bardel and Falk (2007) found in their first study that the same holds for the acquisition of L3 syntax. The L2 status factor was here used as an explanatory factor to the findings. In Falk and Bardel (2010) the L2 status factor was formulated as a hypothesis, the LSFH, making predictions for L3 acquisition. The LSFH is based on properties shared by languages learned in the classroom, including the reliance on explicit cognition based learning strategies. That means that an L2 is transferred in L3 acquisition even in cases where transfer from the L1 would have led to target-like structures.

Finally, according to the TPM (Rothman 2010 & in press), (psycho)typology determines whether the L1 or the L2 will be transferred in L3 acquisition. If a learner perceives the one or the other language to be "closer" to the L3, this particular language will be transferred. This behaviour might lead to either target-like structures or non target-like structures; this is what distinguishes this model from the CEM (see also the results from Rothman & Cabrelli-Amaro 2010, where both the L2 status factor and the CEM are supported).

1.7 The chapters

The following studies all address the role of the L2 in the acquisition of L3 syntax, each targeting a different domain and issue. In chapter 2, the research field on the role of background languages in L3 acquisition is reviewed, mainly in the lexical and syntactic domain. The concept of the L2 status factor is stipulated and put forward as a hypothesis to explain L2 transfer in L3 acquisition. The following chapter, chapter 3, tests the L2 status factor's impact on the acquisition of negation placement at the initial stage of Swedish and Dutch acquisition. In chapter 4, the question of whether the L2 status factor also has an impact at an intermediate level of proficiency is raised by testing the placement of object pronouns in L3 German. The last study, chapter 5, compares and tests the three hypotheses on L3 syntax acquisition by investigating adverb placement in L3 German at the level of intermediate proficiency.

Chapter 2. Falk and Bardel (2010) The study of the role of the background languages in third language acquisition. The state of the art. *International Review of Applied Linguistics in Language Teaching*.

This paper aims to give a review of the most important studies of lexical and syntactic transfer in third language acquisition. While research on L2 acquisition has a long tradition, research into L3 acquisition is a fairly new branch of research in foreign language acquisition. The earliest studies (e.g., Vildomec 1963, Stedje 1977) reported that not only the L1, but also the L2, could act as a transfer source. In this paper we discuss why it is necessary to study the acquisition of an L3 as something separate from true L2 acquisition and we draw attention to the potential transfer sources which can affect the outcome. We also discuss the different factors that are brought up which could explain why transfer sometimes comes from the L1 and sometimes from the L2. Consider the following example (taken from Sjögren 2000):

2. Isn't it *tycka* **heisst doch denken**?

Isn't it *think* is-called MODAL PARTICLE think
(normal: English, *italics: Swedish* and **bold German**)

In (2) the L3 learner of Swedish (L1 German and L2 English) tries to determine the meaning of *tycka* and activates both of her background languages in L3 production of one sentence.

Important explanatory factors proposed are, for instance, (psycho)typology, L2 status and proficiency level in L2 and L3. We argue that the impact of the L2 status factor can be explained by comparing the phenomena that surround the acquisition of L1, L2 and L3 (inspired by Hufeisen 1998). After an account of the most influential L3 transfer studies in both the lexical and syntactic domain, we examine how neuroimaging research can contribute to our understanding of the transfer source. Two opposite findings are interesting to the L3 field, namely the idea that all languages, L1/L2/L3, are located in the same area of the brain, vs. the idea that L2/L3 are located somewhere separate from the L1. If the latter suggestion turns out to be correct then this could be yet another reason for why the L2, and not the L1, is transferred in L3 acquisition. A further distinction discussed is that between implicit and explicit knowledge (e.g.,

Ullman 2001, Paradis 2009). We discuss the L2 and L3 similarities in terms of drawing mainly on explicit knowledge, which is in contrast to the L1 which relies on both explicit and implicit knowledge.

The chapter ends with a section where research methodology in L3 acquisition is considered; issues such as the advantages of having mirror image groups in the data collection (i.e., one group with language combination L1 X, L2 Y, L3 Z and one group with language combination L1 Y, L2 X and L3 Z) in order to disentangle general developmental stages, L1 transfer and L2 transfer. Different testing techniques are also discussed and compared. Finally, some suggestions for future L3 acquisition research are given, where an interplay between the lexicon and syntax is considered.

Chapter 3. Bardel and Falk (2007) The role of the second language in third language acquisition: the case of Germanic syntax. *Second Language Research*.

The aim of the study was to evaluate the Developmentally Moderated Transfer Hypothesis (DMTH) as proposed by Håkansson, Pienemann and Sayheli (2002). We also proposed that transfer from L2 has a stronger impact on the acquisition of an L3, than has an L1, contrary to the expectations formed as a result of the DMTH.

The empirical study compared two groups of learners' acquisition of negation placement, drawing on longitudinal Swedish data collected in the Netherlands and cross-sectional data collected in Sweden. In the longitudinal data, the participants were obliged to follow a crash-course in Swedish as part of an ongoing course on research methodology in linguistics at Radboud University Nijmegen. The cross-sectional data consisted of one-to-one lessons in Dutch as an L3. Both the Swedish and the Dutch data comprise the very initial stage of L3 language acquisition as the participants had no knowledge at all of that language prior to the data collection.

The study focused on negation placement, which is dependent on whether or not the finite verb raises up to the second place in the main clause (the V2 property). One group of learners (the English L2 group) had an L1 with V2 and an L2 without V2, and the other group (the Dutch/German L2 group) had an L1 without V2 and an L2 with V2. The results showed that the Dutch/German L2 group outperformed the L2 English group on negation placement; the Dutch/German L2 group correctly placed the negation postverbally from the initial state, whereas the English L2 group showed evidence of having problems and thus incorrectly produced mainly preverbal negation.

These results did not support the DMTH, according to which, all learners are expected to go through the same developmental sequences. However, the results did support our hypothesis, namely that transfer from L2 also occurs at a syntactic level. This was explained by adopting the *L2 status factor* from Williams and Hammarberg (2009 [1998]) who, in their study on lexical acquisition, suggested that the L2 status factor is a "desire to suppress L1 as being 'non-foreign' and to rely rather on an orientation towards a prior L2 as a strategy to approach the L3" (Hammarberg 2001: 36-37). Interestingly, typology did not influence the transfer source. Recall that the English L2 group had either German or Dutch as an L1 and were acquiring Swedish as an L3, just like the L3 learners of Dutch, who had Swedish as an L1. In these cases the L1 and the TL is both typologically close and related, but nevertheless these learners did not fall back on their L1 even though this behaviour would lead to target-like IL structures. We explained this by suggesting that, in L3 acquisition, the L2 acts like a filter, making the L1 inaccessible."

In this study the impact of the L2 status factor was further tested in learners at an intermediate level of proficiency. The aim was to evaluate whether the L2 status factor would also lead to transfer from the L2 after the initial stage.

The test domain was the placement of object pronouns, which in German displays an interesting pattern; in the main clause (2) the pronoun follows the finite verb (as in English) and in the subordinate clause (4) the object pronoun precedes the finite verb (as in French). This variation is accounted for by verb raising. In a German main clause (MC) the finite verb has to occupy the second position (due to the V2 property), and in a subordinate clause (SC) the verb remains in situ (German is a SOV language), see examples (3)-(5).

3. GERMAN Ginger sieht mich.
Ginger sees me.
4. GERMAN *Jetzt Ginger sieht mich.
Now Ginger sees me.
5. GERMAN Du weisst, dass Ginger mich sieht.
You know that Ginger me sees.

The acquisition of this structure in German L3 was tested using a Grammaticality Judgement Correction Task (GJCT) with variations in the grammaticality and in the degree to which structures were consistent with English or French word order. Participants were 44 learners of German as an L3, who were divided into two groups based on their background language. The L2English group (L2En) had French as an L1, and the L2French group (L2Fr) had English as an L1. This design allowed us to pinpoint the transfer source. A control group of native German speakers also took part.

The results showed that in all four sentence types (cf., 3-5), the two groups behaved differently, and in a manner consistent with an influence from their respective L2s. In this study, the L2 status was again supported (at an intermediate proficiency level). We discussed the data in terms of potential cognitive similarities between L2 and L3 learned in a classroom (as opposed to an L1), namely the way in which the languages are learned, the age of onset, outcome, learning situation and metalinguistic awareness.

Chapter 5 Falk (submitted) The impact of the L2 status factor on the acquisition of German as an L3. A study of adverb placement.

In this study three competing hypotheses about the roles of the L1 and L2 in L3 acquisition are tested on German L3 data. The Cumulative Enhancement Model (CEM, Flynn et al. 2004) predicts that all earlier acquired languages can be transferred in L3 acquisition, when there is a structural overlap in two of the languages involved. According to the Typological Primacy Model (TPM, Rothman 2010 & in press) transfer will occur from either the L1 or the L2, depending on (psycho)typology, that is, the learner will transfer from that language which most resembles the L3, even though this might not be the most economical option. Finally, the L2 status factor hypothesis (LSFH, Bardel & Falk 2007, Falk & Bardel 2010 & in press) predicts that the L2 is favoured as a source of transfer in L3 acquisition.

These three hypotheses were tested on the acquisition of adverb positioning in L3 German. The participants had either English as L1 and French as L2, or vice versa. In German, the adverb is postverbally placed in a main clause (as in French, cf., (6)), and preverbally in a subordinate clause (as in English, cf., (7)).

6a. GERMAN Ginger trinkt oft Wasser.

6b. FRENCH Ginger boit souvent de l'eau.
Ginger drinks often water
'Ginger often drinks water.'

7a. GERMAN Ich weiß, dass Ginger oft Wasser trinkt.

7b. ENGLISH I know that Ginger often drinks water.

Data for this study was collected by the use of a Grammaticality Judgement Correction Task (GJCT) involving the two grammatical structures (cf., (6) and (7)), and two corresponding ungrammatical structures. The sixty participants were divided into two language groups: the L2En group (with L1 French) and the L2Fr group (with L1 English). All learners were at an intermediate level of German. A German native control group also undertook the GJCT.

The results showed that the participants judged the grammatical sentences in a fairly similar manner, but the ungrammatical sentences were judged differently by the two groups. The L2En group did not always detect the ungrammaticality in the German sentences with the English word order pattern. The same held for the L2Fr group where German sentences had a French word order pattern.

The results did not support the CEM, which predicts that both the L1 and the L2 can supply the L3 with the appropriate feature value, in order to yield target-like structures. Nor did they support the TPM, which posits that there will be no differences between the two groups, since (psycho)typology determines which of the background languages that will be transferred. This global perception of similarity between languages must be assumed to be the same for learners, independently of the language being an L1 or an L2. In contrast, the data did support the LSFH, which predicts that the L2 will be favoured in L3 acquisition.

To summarize, the three empirical studies reported support the LSFH, which assumes that the source for syntactic transfer in L3 acquisition, by default, is the L2.

CHAPTER 2.

THE STUDY OF THE ROLE OF THE BACKGROUND LANGUAGES IN THIRD LANGUAGE ACQUISITION. THE STATE OF THE ART.

Falk, Y. and Bardel, C. (2010) International Review of Applied Linguistics in Language Teaching.

Research specifically concerning third language (L3) acquisition² is a relatively new branch of the study of language acquisition and it is expanding substantially. After a few earlier contributions (e.g., Ringbom 1987; Stedje 1977; Vildomec 1963), research into L3 acquisition and use witnessed a boom towards the turn of the century. A number of conferences on L3 have taken place in Europe (see e.g., Cenoz et al. 2001a), articles, publications of conference papers and other volumes have appeared and this field of research is currently characterized by new areas of inquiry and methodologies. The role that the background languages play was the centre of attention in early L3 studies and continues to be so. Traditionally, the main interest in the field of *second language acquisition* (SLA) has above all been focused on how non-native languages are acquired generally, and L3 research still has a particular status compared to classical L2 research, where no distinction is made between second language and third language (De Angelis 2007; Hammarberg 2010).

The area of L3, which has as yet been most investigated is vocabulary. An impressive number of studies on lexical CLI³ have appeared within the psycholinguistic and sociolinguistic fields (e.g., Cenoz et al. 2003; Dewaele 1998; Williams & Hammarberg 2009 [1998]). Nevertheless, L3 vocabulary is still an area that requires further exploration, in particular as far as advanced levels of proficiency are concerned; see however Lindqvist (2010) regarding this topic. The insights gained from research on L3 vocabulary can be said to serve as a base for further research into other areas of language. In recent years a newly generated interest in L3 research has arisen in the area of syntax (e.g., Bardel & Falk 2007; Flynn et al. 2004; Leung 2005a, 2006, 2009). This has taken place parallel to, and mainly separately from, a continued study of L3 vocabulary. It has however been suggested by Leung (2007: 109) that it might be interesting to study L3 lexicon and syntax from an integrated point of view. As Leung points out, recent generative linguistic theory, i.e., the Minimalist Program (Chomsky 1995 and later), acknowledges the interaction between lexicon and syntax. The role of Universal Grammar, UG (Chomsky 1965), has long been discussed in studies of L2 acquisition. Within the generative paradigm, there has been a debate on whether or not L2 learners have access to UG, while in other research paradigms, this is not an issue and the learner is assumed to follow developmental stages, based on general cognitive, processing and/or pragmatic principles (e.g., Klein & Perdue 1992; Pienemann 1998). In research on L3 syntax, it has been argued that both L1 and L2 play a role in the acquisition process. As for the question of access to UG, this has recently been brought up in generative studies and research overviews within the L3 field (Flynn 2009; Flynn et al. 2004; Iverson 2010; Leung 2007).

²Although many SLA researchers use the terms acquisition and learning as synonyms, there is a point in distinguishing acquisition (in the case of natural or informal acquisition) from learning (in the case of formally learned languages), cf., Paradis (2009), who has proposed the term appropriation as a hyperonym. We will however follow the mainstream L2 and L3 literature using the term acquisition generally, in accordance with most of the studies included in this paper.

³The preference for either of the terms cross-linguistic influence and transfer varies from study to study, mainly depending on different terminological traditions (for a discussion, see Sharwood Smith and Kellerman 1986). In this chapter, we will use the two terms interchangeably, aiming however to adapt to the current use in the studies or branch of research referred to.

L3 phonology is another area that will benefit from further exploration, although a few studies into this subject can be mentioned (Cabrelli-Amaro & Rothman 2010; Chamot 1973; Hammarberg & Hammarberg 2009 [2005]; Llama et al. 2010; Rivers 1979; Wrembel et al. 2010).

As pointed out by Hammarberg (2010), it is common practice in most L3 studies to use the term L3 for any non-native language acquired after one L2, i.e., from the third language and onwards. Hammarberg also notes that in several studies, more than three languages are involved, because the learner has previously acquired more languages than one L1 and one L2, and the term L3 is then used for the language which the multilingual is currently using or acquiring. This leads us back to the operational definition of L3 suggested by Hammarberg in 2001:

In order to obtain a basis for discussing the situation of the polyglot, we will here use the term L3 for the language that is currently being acquired, and L2 for any other language that the person has acquired after L1. It should be noted that L3 in this technical sense is not necessarily equal to language number three in order of acquisition. (Hammarberg 2001: 22)

The underlying principle within research into multilingualism and L3 acquisition can be said to be the idea that all human beings are potentially multilingual. As Hammarberg (2010) observes, this has important implications for an overall theory of language competence, use and acquisition. Since two or more languages can coexist in an individual's mind, multilingualism is considered by many as the default status of humans, rather than monolingualism (Cook 2002, 2003). Central questions in L3 research concern the rationale for activation⁴ of different languages when the intention is to use one particular language, the L3. Why is it sometimes the L1 that is a source of transfer, for instance in lexical choices or word order, and in other cases an L2, as is most obvious in many studies? A number of explanations have been put forward, and as Williams and Hammarberg (2009 [1998]), and many others after them, suggested, different factors possibly interact, depending on their relative strength in the individual learner. These factors are based mainly either on the individual's knowledge or perception of the languages in question, or on the characteristics of the languages themselves (the target language, TL, and the presumed influential language). Some of the most hotly-debated factors to date are the so-called *L2 status factor* (a general tendency of the language learner to activate other foreign languages when using a non-native language), *proficiency level* and *typology*. All of these factors seem to be of importance, and can also be difficult to separate. For instance, as we will see in studies on L3 syntax, in order to keep the L2 factor and the typology factor apart, one needs to gather data from particular language combinations. For example Romance languages are interesting test cases, because of their relatedness and high similarity, relative to other possible language combinations. If we look at these languages, there are however

⁴The expressions "activation" and "activated" are ambiguous in that they could refer to transfer (transient activation of an element of L1 or L2 when an L3 word or structure is problematic), but is also widely used in psycho- and neurolinguistics to refer to the fact that when a language is used, all other non-selected languages are also concurrently activated (though to a lesser extent), as revealed in priming experiments. In this context, where we refer to sociolinguistic as well as to psycho-neurolinguistic studies, it is used to refer to both phenomena.

both similarities and differences, at various linguistic levels — vocabulary, syntax and phonology — that can have either a positive or a negative transfer effect on the language that is being acquired. Studies of Romance languages, and of how they interact in the acquisition process, can shed light on the roles of L1 and L2 and how they can be explained by factors such as proficiency level in the languages involved, psychotypology (as defined by Kellerman 1983), language proximity and the L2 status factor. The same applies, of course, to most of the Germanic languages: Scandinavian languages, German and Dutch display many similarities, but there are also differences at lexical, syntactical and phonological levels. English — although a Germanic language — displays many influences from Romance languages at the lexical level, and shares relatively few similarities with the other Germanic languages at the level of morphosyntax. This makes English a special case among languages. Also, from a socio- and psycholinguistic point of view, English often has a special status among the languages known to multilinguals. Being a widely spread language, it is either the L1 or an L2 of the learners in quite a lot of cases, and even if it is an L2, it can often be of a very high proficiency level. We will return to this matter in the discussion of methodology in section (2.6).

The paper is structured in the following way: In the first section, we try to define what characterizes the study of L3, and why researchers find it necessary to distinguish between L2 and L3 acquisition. We then continue with a survey of three of the most important factors that determine the activation of previously acquired languages in L3 acquisition, namely typology, L2 status and proficiency, to be followed by a brief overview of studies of L3 vocabulary. After that we report on the study of L3 syntax from a generative viewpoint, and continue with a discussion of what neurolinguistics can possibly contribute to L3 research, especially in the understanding of transfer. Finally, we conclude with some remarks on research methodology and some suggestions for future L3 research.

2.2 What characterises L3 acquisition and what distinguishes L3 from L1 and L2?

The rationale for distinguishing L3 acquisition from L2 acquisition is diverse and complex. It has been pointed out by many that the acquisition of a true L2 and an L3 is not the same. A key factor is the multiplicity of possible interactions between the linguistic systems in the multilingual learner's mind: "Second language learners have two systems that can potentially influence each other ($L1 \leftrightarrow L2$) [...]. Two other bi-directional relationships can take place in third language acquisition: the L3 can influence the L1 and be influenced by the L1 ($L1 \leftrightarrow L3$) and cross-linguistic influence can also take place between the L2 and the L3 ($L2 \leftrightarrow L3$)" (Cenoz et al. 2001b: 2). Let us illustrate the interaction of both L1 and L2 with L3 by looking at the following example from the semi-spontaneous speech of a learner of Swedish as L3.⁵

1. Isn't it *tycka* **heisst doch denken**?
 Isn't it *think* means **MODAL PARTICLE think**?
 (Normal: English L2, Italics: Swedish L3, Bold: German L1)

⁵Examples 1–2 stem from two earlier studies (Bardel and Falk 2007; Sjögren 2000).

In this utterance, the learner (who is a native speaker of German) wants to establish the meaning of the Swedish verb *tycka* ('think'). She activates three different languages in a situation where only the TL Swedish is used by the interlocutor. While English L2 introduces the utterance and German L1 completes it, the only Swedish word is the verb *tycka*.⁶ There are several possible explanations as to why L1 and L2 are both activated in this utterance. A restricted competence in the TL probably forces the speaker to use other languages of her repertoire, and one could also assume that she is trying to accommodate to the interlocutor's linguistic preferences — the learner could presume English to be preferred, since knowledge of this language is more widespread than German. But why then would the learner switch over to German at the end? Williams and Hammarberg (2009 [1998]) have shown that L1 and L2 take on different roles in L3 production, basically either an instrumental role (when the language is used in pragmatically functional language shifts, supporting the communication and the acquisition by the elicitation of words or by metalinguistic comments) or a supplier role (when the language supplies material, words or morphemes, not always with a clear communicative aim). In their case study, the authors found that L2 mostly took on the supplier role and L1 the instrumental role. Something like this seems to be going on in (1), where English (the L2) is used in a false start (Isn't it) and German (the L1) is used in a question directed to the interlocutor, who is a native speaker of Swedish, concerning a word of the TL. In the last decade, similar analyses have been performed and a number of hypotheses have been advanced about what lies behind the activation of L1 and L2 in L3 acquisition and use. CLI from both L1 and L2, as seen in (1), has been found not only at the lexical level, but can be observed also at other linguistic levels. For example, oral data also manifest syntactic properties transferred from L2 as well as L1 into L3. In the following example, we see clear L2 syntactic transfer (in addition to CLI at the lexical level), from Dutch L2 into Swedish L3 (English is the L1):

2. *Jag vet het, men jag vet niet, men jag vet inte, hoe het på svenska,
 på svenska eh s-säger.
 I know it, but I know not, but I know not, how it in Swedish,
 in Swedish eh s-say.
 (Normal: Dutch L2, Italics: Swedish L3)*

Note that Swedish, just like English, is a language with SVO word order, whereas Dutch has OV word order, visible in the subordinate clause. OV is here transferred from Dutch L2 into Swedish L3, which is clearly manifested by the final position of the verb *säger* ('say'). Thus, in this case, the transfer of L2 syntax overrides transfer of L1 syntax (even though transfer from English L1 would yield a target-like structure, SVO). It is important to note that the verb final position used by the learner is not a recognized interlanguage (IL) structure of any developmental stage of the acquisition of SVO languages, such as Swedish (e.g., Pienemann 1998).

It may seem surprising that L2 can take on stronger role than L1 as supplier, as in (1), and as main source in syntactic transfer, as seen in (2). The L1 is the language that

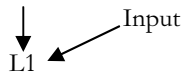
⁶At a semantic level, this word constitutes a problem for many learners of Swedish as a foreign language, since it has a restricted meaning ('to have an opinion'), as opposed to German *denken* and English *think* ('to believe' / 'have an opinion' / 'reflect').

an individual has learnt before other languages, it is normally the most commonly used language, and also normally the language in which the speaker has the highest degree of proficiency. Then why would L2 be more easily transferred in some situations? As we see it, the differences just mentioned and other cognitive differences between the acquisition of an L1, an L2 and an L3 might as a matter of fact explain why L2 is often present and sometimes even preferred over L1 as transfer source. The following illustration, inspired by Hufeisen (1998: 171–172), indicates the increased number of factors that come into play when L3 acquisition is taking place.⁷

Figure 1. L1, L2 and L3 acquisition, inspired by Hufeisen’s model (1998: 171–172).

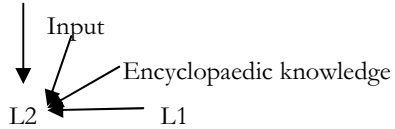
L1 acquisition

Prerequisites for language acquisition



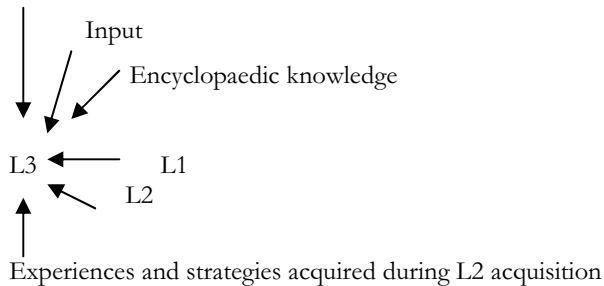
L2 acquisition

Prerequisites for language acquisition



L3 acquisition

Prerequisites for language acquisition



⁷For a more recent and elaborated version of the model, see Hufeisen and Marx (2007).

Within the generative framework (cf., Chomsky 1965 and later works), input is assumed to interact with innate language acquisition prerequisites in L1 acquisition. According to the model illustrated in Figure 1, in true L2 acquisition, i.e., the first encounter with a foreign language, there are two important additional factors, encyclopaedic knowledge and knowledge of L1. Eventually, in L3 acquisition, the learner has already come into contact with at least one non-native language. As pointed out by Hammarberg (2010), the age of onset for an L2 may vary from very early in childhood, as in early consecutive bilingualism, to later times in the life-span. Also, the acquisitional setting may vary from predominantly informal acquisition, as is the case for instance in bilingual environments, to more formal settings, such as foreign language learning in the classroom. Anticipating what will be said in 3.2, it can be assumed that L3 learners, especially those who have learnt the L2 in a formal setting, are aware about the language learning process, and have acquired metalinguistic experiences and learning strategies to facilitate foreign language learning (cf., e.g., Jessner 2006; Towell & Hawkins 1994; Wood Bowden et al. 2005).

A recent neurolinguistic framework which we believe would support this line of reasoning is the one by Paradis (2004, 2009), cf., Ullman (2001). According to Paradis (2009: X) our capacity of verbal communication includes linguistic competence (phonology, morphology, syntax and the lexicon) and metalinguistic knowledge (conscious knowledge of facts about languages, including vocabulary). Implicit linguistic competence and explicit metalinguistic knowledge are neurolinguistically distinct and dissociated and have different memory sources (Paradis 2009: X–XI). Implicit linguistic competence is sustained by procedural memory and explicit metalinguistic knowledge by declarative memory. They involve different types of cerebral representation: Implicit competence involves procedural, nonconscious representations, while explicit knowledge involves declarative, conscious representation. In L1, implicit linguistic structure (phonology, morphology, syntax) is sustained by procedural memory, and words (as form-meaning pairs) are sustained by declarative memory. While L1 grammar is implicitly acquired and sustained by procedural memory, L2 grammar (“to the extent that teaching of L2 is formal”, Paradis 2009: X) is based on explicit knowledge and sustained by declarative knowledge, which also takes care of vocabulary knowledge in both L1 and L2.

We would like to stress the following differences between native language and non-native languages:

- age of onset,
- outcome,
- learning situation: natural/informal vs. classroom,
- degree of metalinguistic knowledge,
- learning strategies present in L2 but not in L1,
- degree of awareness of the language learning process.

Obviously, these differences between native language and non-native languages are not categorical, but will apply more or less, depending on the age of the learner and the acquisitional setting of the L2. L3 research acknowledges the complex situation regarding the number of languages known by the individual learner, their degree of similarity and possible interaction, and the differences in acquisitional setting. In the

following section, we will present some fundamental factors that seem to determine the way in which background languages (L1 and L2) interact with the TL in L3 acquisition.

2.3 The factors that determine the transfer source in L3

In the L3 literature, the discussion of CLI has evolved around a number of factors that seem to play an important role as to which of the background languages will be activated and possibly transferred when using an L3. The most important of these factors appear to be typology, L2 status and proficiency level. Other factors that have been raised in L3 studies are, for instance, recent use of a background language (recency), age of acquisition, and — in the case of oral production elicited in conversation — the degree of formality of the communicative situation and the role of the interlocutor (Bardel & Lindqvist 2007; Dewaele 2001). In their case study, Williams & Hammarberg (2009 [1998]) proposed that the interaction of the factors typology, L2 status, proficiency and recency determined the activation of a language in L3 oral production. The authors suggested that the language that reached the highest value for all these factors together would best qualify to serve as a supplier and in fact the background language that scored highest on all these factors was also the language that was most used as a supplier by the learner in that study.

In the following sections, we will concentrate on the role of typology, L2 status and proficiency level, these being the factors that, to our minds, are of most importance generally.

2.3.1 Typology

An important factor, according to many, is the so-called typology factor. Under this umbrella, the terms typology, psychotypology and even just similarity are used, sometimes with the same, sometimes with different, denotations. We suggest a distinction between three different notions: a) language proximity/distance based on genetic relatedness, b) typology in the sense of Croft (1990), i.e., typological similarity of particular structures, and c) psychotypology, as coined and defined by Kellerman (1983), i.e., the learner's perception of similarity of languages. We will try to clarify these three notions, and briefly discuss their internal relationships. Let us start with a) language relatedness. There are a number of L3 studies that have investigated transfer from languages (L1 or L2) that are closely related to the L3. For instance Bardel (2006), Bardel and Lindqvist (2007) and De Angelis (2005a, 2005b) showed that a Romance L2 easily transfers into another Romance L3. Cenoz (2001), who observed Spanish L1, Basque L2 and English L3, concluded that Spanish L1, which is more closely related to English than Basque, was transferred. Another example is Ringbom (1987) who concluded that Swedish as either L1 or L2 was transferred into English L3 rather than Finnish (L1/L2). Also in this case the more closely related languages interact (see also Odlin & Jarvis 2004 for results from another study on English as L3 in Finland, pointing in the same direction). However, as pointed out also by De Angelis (2007), language relatedness does not imply exact sameness in specific structures, in phonemes or in lexical forms, although there might be an overall similarity at a global level between two closely related languages. On the contrary, there are diametrical

differences between languages within the same language groups at the morphosyntactic level, e.g., Spanish and French (+/- null subject parameter), or Swedish and German (SVO/SOV). Also at lexical levels there are deceptive cognates as well as helpful cognates, commonly called “false friends” (Ringbom 1987, 2007). Turning to b) typology, this notion includes ad hoc similarity between linguistic features, for example the verb-final property, which applies to the non-related languages German and Turkish, as well as the V2 property that applies to the related languages Swedish, German and Dutch. Finally, c) psychotypology according to Kellerman (1983) is the learner’s perception of relative proximity of languages. It is generated in the learner’s mind and does not necessarily refer to objective linguistic similarity, but to the learner’s own perception of the relationship between the languages.

As just mentioned, and as De Angelis (2007) has also pointed out, two “unrelated” languages can be formally similar as to certain formal features or components. This has been shown by Ringbom (2003) who claims that there are a number of lexical and morphological similarities between two such distant languages as Finnish and Swahili that a language learner might acknowledge. According to Ringbom, a language learner is always searching for similarities between languages (cf., Heywood 2000).⁸ It could thus be justifiable to claim that formal similarity, tout court, is an important factor for learners, at least at the initial stages of development of an L3.

2.3.2 L2 status

In the last two decades, studies have emerged which indicate, in accordance with Figure 1, that the acquisition of a non-native language is qualitatively different from L1 acquisition, and that acquisition of a true L2 is also different from that of subsequent non-native languages (L3), since the L3 learner has already acquired at least one L2 up to some level, and this knowledge plays a role in the acquisition of other foreign languages (Bardel & Falk 2007; Flynn et al. 2004; Hufeisen 1998; Leung 2005a; Williams & Hammarberg 2009 [1998]). It has been proposed that L2 status per se is an important factor in L3 acquisition. The L2 status factor was originally proposed by Williams and Hammarberg (2009 [1998]), who in their longitudinal case study discovered a general tendency to activate an L2, rather than the L1, when producing a third language. Hammarberg (2001) defines the L2 status factor as “a desire to suppress L1 as being ‘non-foreign’ and to rely rather on an orientation towards a prior L2 as a strategy to approach the L3” (Hammarberg 2001: 36–37).

The same phenomenon had already been pointed out by Meisel (1983) as a foreign language effect and has been noticed also by Ecke and Hall (2000) as a Fremdspracheneffekt. If a learner has more than one L2, as in the case of the subject observed by Williams and Hammarberg (2009 [1998]), one L2 can outrank the other(s) on the basis of the criteria of typology, proficiency and recency, and thereby become the standard alternative in the role of “external supplier” (as opposed to internal supplier, which would be the TL, see also Hammarberg 2001). Bardel and Falk (2007) suggested that the L2 status factor, which seems to lead to activation of an L2 in L3

⁸This introspective study by Heywood (2000) gives an account of strategies a polyglot makes use of when trying to memorize lexical items in Finnish, a language that he has never been in contact with before.

vocabulary, might also have an impact in L3 syntax. There are different hypothetical explanations as to why an L2, rather than the L1, should be activated in L3 acquisition and use. In introspective comments made in the case reported in Williams and Hammarberg (2009 [1998]), the learner says that she deliberately avoided using elements from her L1 (English). This was because she did not want to sound like a native speaker of English. According to her own comments, she had “a desire to suppress L1 in the belief that this is inherently ‘non-foreign’ and thus that using a non-L1 and hence ‘foreign’ language would be a better strategy in acquiring another ‘foreign’ language” (Williams & Hammarberg 2009 [1998]: 63). The following dialogue illustrates the learner’s (SW’s) reluctance towards the use of the L1, English, when producing L3 Swedish:

SW: I was going to say something German but that just didn’t seem right, because I didn’t have any recollection of you saying something like *werfen* and so I looked around for some other foreign-sounding word, and the only other language I can speak is French, so I came up with *jeter*. /.../

BH: And you were somehow reluctant to use English words, because you feel that they wouldn’t fit?

SW: Yes, because it would just sound ridiculous...

(Williams & Hammarberg 2009 [1998]: 25–26)

In a similar vein, De Angelis (2005a, 2007) accounts for a higher degree of activation of an L2 than the L1 using the two psycholinguistic constraints of perception of correctness and association of foreignness: “Perception of correctness predicts that multilinguals resist incorporating L1 information into the target language as L1 information is perceived to be incorrect from the start [...]. Association of foreignness refers to the cognitive association that learners establish between non-native languages, which are assigned the common status of ‘foreign languages’” (De Angelis 2007: 29).

Building upon the schema represented in Figure 1, Falk and Bardel (in press) have suggested that adult language learners classify their languages (native language and non-native languages learned later in life and in class-room settings) according to sociolinguistic and cognitive differences. The L2 status factor is a natural outcome of sociolinguistic and cognitive differences between L1 and L2 acquisition, such as age of onset, proficiency level, learning situation, metalinguistic knowledge, learning strategies only present in L2, awareness of the language learning process in L2, but not in L1, as explained in section (2.2).⁹ While these differences can be claimed to be of significance when contrasting L1 and L2 acquisition, all of them become less important when comparing L2 and L3 acquisition.

2.3.3 Proficiency level

It is clear from many studies that the proficiency level in the TL as well as that in background languages plays a role as to the degree and manner in which a background language will influence an L3. It is often assumed that high proficiency in a background

⁹Needless to say, in the case of early bilingualism these differences become of less relevance.

language will enable this language to play a role in the acquisition of a new language, and this has also been shown in some studies (see e.g., Williams & Hammarberg 2009 [1998]). Nevertheless low proficiency in a background language also seems to be a factor (De Angelis 2005b). It is generally assumed that the lower the proficiency level in the TL the more the background languages will exert influences in order to solve communicative problems (Ringbom 1987). Ringbom also hypothesizes that lexical transfer will be more formal in character in the early stages of acquisition and more semantic in character at higher levels of development of the TL. This hypothesis is confirmed in the study by Lindqvist (2010) into the vocabulary of advanced Swedish learners of French, where the author found that transfer of meaning was the prevalent category of CLI in the learners under observation. Lindqvist also concluded that although several L2s were known by these learners, only English L2 and the L1 Swedish, i.e., the background languages in which the learners were most proficient, were the sources in these cases of transfer of meaning. Closely related languages such as Spanish and Italian were not used at all. Consequently, the study indicates that high proficiency in background languages is decisive for lexical CLI to occur when the level of proficiency in L3 is also high.

De Angelis (2005a) reports an interesting case of preference of Spanish L2 over French L1 in the acquisition of Italian L3. All these languages are closely related and the proficiency factor would lead to preference of French L1 as a transfer source. This is however not the case. As already noted in section (2.3.2), De Angelis suggests that the preference for Spanish L2 was constrained by a perception of correctness and an association of foreignness. It is interesting to note, however, that the informant had a low proficiency level in Spanish, and one might suspect that the similarity between the languages as well as her low proficiency in both, made it difficult to distinguish between the two systems, as indeed De Angelis (2005a) also suggests. Similar results, regarding lexical CLI from rudimentary Spanish L2 into Italian L3 at the beginner's level, were found in a study by Bardel and Lindqvist (2007), which will be discussed in section (2.4.1).

We can conclude that lexical CLI can occur either from an L2 with high proficiency (Lindqvist 2010; Ringbom 1987, 2001; Williams & Hammarberg 2009 [1998]) or, somewhat more surprising maybe, from an L2 with low proficiency (Bardel & Lindqvist 2007; De Angelis 2005a). Both Lindqvist (2010) and Bardel and Lindqvist (2007) indicate that the proficiency level in the L2 and that in the L3 interact as important factors behind the activation and transfer of previously acquired languages: if the proficiency level of the L3 is low, a low-proficiency background language tends to be activated, and if the proficiency level of the L3 is high, a high-proficiency L2 or the L1 tends to be activated.

Another interesting aspect of high proficiency in the background languages is the potential of an L2 to be so well mastered that it comes close to L1 proficiency. In such cases, it could be hypothesized that a non-native language could become automatized, and as suggested by Bardel and Falk (2007), lose its L2 status and its influential role in the L3 acquisition process. Among the Swedish high-school students observed in Bardel's (2006) study, introspective comments revealed that the learners distinguished English, their first foreign language studied in school, in which their proficiency level was high, from other foreign languages in which their proficiency was much lower. According to the participants, their knowledge of English was more deeply rooted than that of other foreign languages, and therefore did not tend to "pop up" in production.

In fact, the recordings of the learners revealed no activation of English. These tendencies would need to be confirmed by more research, however.

A relatively high proficiency in the background language is required for syntactic transfer of target like structures from L2 into L3 to occur (Bardel & Falk 2007; Schmidt & Frota 1986). Ideally, as we will discuss in section (2.6), the learners should be tested on the structure being studied in the background languages.

2.4 Transfer in L3 vocabulary and syntax

In this section we will give a brief overview of studies on CLI in L3 vocabulary, and then concentrate on recent studies on transfer in the field of L3 syntax. Transfer in L3 has been observed also at other linguistic levels (cf., De Angelis 2007: 50–56), but these areas (morphology and phonology) are far less investigated than vocabulary and syntax, and require further research.

2.4.1. Vocabulary

CLI is particularly obvious in lexical deviances from the TL. Three main types of CLI-based lexical phenomena can be discerned: pure code-switches, i.e., the insertion of entire words from one language into another, “false friends” (errors that appear when the learner creates a correspondence between words in background language and TL that are phonologically/orthographically identical or similar but where the meaning is different), or word construction attempts in which lexical material from a background language (L1 or L2) is adapted to the TL at a morphological or a phonological level (Cenoz et al. 2003; Dewaele 1998; Williams & Hammarberg 2009 [1998]). We will give a few examples below, but for a detailed classification of the broad area of lexical CLI see Ringbom (2007).

Examples of code-switching have already been shown in (1) and (2), where instances of both the L1 German and the L2 English/Dutch were inserted at the level of lexemes. By word construction attempts, we mean word constructions where influence from the background languages is visible at the lexical and the grammatical morpheme level. In both cases the phonology is normally adapted to the TL. Some examples from French L3 reported by Lindqvist (2006: 65) are: *grades (from English grades — TL form: notes); *combination (From Swedish kombination/English combination — TL form: combinaison). Similar examples from Italian L3 where French is the source language (Bardel & Lindqvist 2007) are: *doctorante (from French doctorante — TL form dottoranda; Eng. ‘doctoral student’); *esciarpa (from French écharpe — TL form sciarpa; Eng. ‘scarf’). An example of the “false friend” phenomenon is the use of the English word eventually in the sense of possibly/maybe, sometimes encountered among Swedish native speakers’ English. As noticed in Bardel (forthcoming), the source language in this case could be the L1, Swedish, since the Swedish word eventuellt means possibly/maybe. But it can also have its source in other languages known to the speaker, for instance in Italian, where the equivalent and true friend of eventuellt is eventualmente or in French (éventuellement). Apart from typical CLI-based errors of this kind there is obviously also a positive effect of CLI from

previously acquired languages on the TL. Such a positive effect (traditionally called “positive transfer” in opposition to “negative transfer”) is not as easily detected as negative transfer, since by definition it does not lead to any deviances from the TL.

One of the pioneers in the study of L3 acquisition was Astrid Stedje. Her study from 1977 examined lexical transfer into German L3. The informants, 55 speakers of Finnish as L1, transferred content words from Swedish L2 to a higher degree than from Finnish. Her study was thereby one of the first that pointed at a possibility of transfer from one foreign language into another. In Ringbom’s study from 1987 on English as L3 in Finland, the learners had either Finnish as L1 and Swedish as L2 or the other way round. Ringbom analyzed lexical transfer in written essays and found that both groups relied mostly on Swedish, independently of L1 or L2 status. His data thus speaks in favour of the typology factor, in the choice between L1 and L2 as a transfer source.

The study of Williams and Hammarberg (2009 [1998]) not only showed that there is an L2 status factor in L3 acquisition, but also that the L1 and the L2 played different roles in the oral production of Swedish L3 in a particular case. The results from the study can be interpreted as though the L1 on the one hand is used in a conscious way, in situations where the informant deliberately decides to leave the foreign language mode and use English (which she knows that the interlocutor has good knowledge of). The L2, on the other hand, is used more subconsciously in word constructions or insertions of words that for some reason (probably low proficiency) will not be activated in the TL. A factor that might be relevant here is the linguistic repertoire of the interlocutor. It may be a coincidence that the common language of the speakers, English, is also the L1 of the informant, and thus its instrumental role may not be determined by the fact that it is an L1.

De Angelis (2005b) is a study of function words in the written production of Italian L3. Background languages are English, French, and Spanish as either L1 or L2. The study borders on syntax as it investigates the use of overt pronouns. It was shown that the learners with French L2 transferred the personal pronoun *il* into Italian (a pro-drop language). Interestingly, the form of the French pronoun *il* coincides with the Italian article *il*, a fact which makes it possible to interpret the results as a false friend effect at the interface between syntax and lexicon.

A study on L3 vocabulary that confirms the role of the proficiency factor in both L2 and L3 and how it interacts with the role of psychotypology is Bardel and Lindqvist (2007), which reports a partly introspective case study of a beginner of Italian L3. The study showed that at an initial stage of acquisition even languages with low proficiency can be activated and used in code-switches. This was the case with Spanish L2 in this study. As the TL proficiency developed, more use was made of French L2, a language in which the informant had high proficiency. French was generally not used in pure code-switches, but rather in strategic word formation based on French lexical bases but adapted to Italian morphology. The authors concluded, partly basing their conclusion on the introspective comments of the learner, that a very similar background language (such as Spanish in the case of acquisition of Italian) can interact with the TL at a subconscious level, even though both the proficiency level and the degree of recency is low. If the proficiency level of a background language is high, as was the case with French, this language can be successfully kept apart from the L3 as far as code-mixing is concerned, but be used strategically in conscious word construction attempts.

Lindqvist (2006, 2009) studied two types of lexical CLI, namely code-switches and word construction attempts, in the oral production of French L3, at different

proficiency levels in the TL. The learners are mostly Swedish native speakers with several L2s. She concluded that both types of lexical CLI under observation were mostly present at lower levels of proficiency in the TL and that they decreased successively as the proficiency level in the L3 increased. She also found that Swedish L1 was present more often than other background languages as transfer source.

Most of the studies reported here are based on oral data, and in fact, it is mainly oral production that has been studied within the research of L3 vocabulary (Cenoz 2003). On-line oral production is an area where a lot of CLI phenomena occur (as seen in examples 1 and 2 above), and some of the authors have consequently applied speech models of various types to their data. Models of multilingual speech production that have been applied are for instance Grosjean's Language Modes Hypothesis (1992) — a model investigated further by e.g., Dewaele (2001) and de Bot's (1992) adaptation of Levelt's speech production model (1989) which was referred to in Williams and Hammarberg (2009 [1998]) and further developed in de Bot (2004) into a model for processing multiple languages. For discussions of the mental lexicon of the multilingual speaker and of its separation versus integration in relation to different linguistic systems, we refer to Singleton (1999) or De Angelis (2007).

2.4.2 Syntax

The study of syntactic transfer in L3 acquisition is a younger research field than that of lexical transfer. We will start by taking a look at a handful of early studies from the 1990's which prepared the way for several studies conducted around the beginning of 2000.

In his pioneering work Vogel (1992) carried out a case study on a Mandarin L1 speaker, with L2 English who was acquiring German as an L3. Besides very strong L2 transfer at the lexical level Vogel also found syntactic transfer from L2 into L3 German; the participant produced [SVfin.Vnonfin.O] structures, i.e., no verb separation, as is compulsory in German, but not in English, and a non-application of the V2 rule in main clauses with fronted adverbs. Although no account is given of the form of the structure in question in Mandarin, Vogel understands these word order violations as an instance of L2 transfer.

Klein (1995) presented a study with the following research question: is the grammar of multilinguals different from that of monolinguals? In a previous study, Zobl (1992) had come to the conclusion, by various judgement tests, that multilinguals have "wider" IL grammars in the sense that they accept more marked constructions and ungrammatical sentences, since they are being less restrictive in a new language, than monolinguals are. Klein approached this question from a different angle; she tested both multilingual and "unilingual" (i.e., monolingual) learners of English as a second or third (or fourth) language. Her question was whether the multilinguals¹⁰ (n=15) would outperform monolinguals (n=17) on the acquisition of preposition stranding (a word order that is optional in English, e.g., *Who are you waiting for?* vs. *For whom are you waiting?*). Her hypothesis was that multilinguals would acquire the preposition

¹⁰Unfortunately, the background languages of the learners are only exemplified and not completely revealed in the article.

stranding structure easier/faster, even though they had not acquired an L1 or an L2 with this structure. This turned out to be the case. This suggests that multilinguals might benefit from a higher metalinguistic awareness, going through a less conservative learning procedure; they have an “enhanced lexical knowledge which may help to trigger parameter-setting, and this propels Mls [multilinguals] further along the path of acquisition” (Klein 1995: 450).

Bouvy (2000) studied the acquisition of English L3 by native speakers of French, who had acquired another Germanic L2. She classified the errors found in the written essays of business administration students at a university in Belgium, for whom it was compulsory to take language courses in English and either Dutch or German. Her conclusion was that there are qualitative differences and that “L2/L3 transfer is limited to specific parts of speech or linguistic phenomena and consists almost exclusively of a process of relexification, [...] leaving the syntactic structure unaffected” (Bouvy 2000: 144). She suggested that L2 transfer is only performance-based and therefore only affects the lexical level, and thus does not behave like L1 transfer, which she also found in the syntax.

Another early study that also looks at the impact of L2 syntax among other aspects in L3 German was carried out by Dentler (2000). She investigated German main clauses produced by L1 Swedish speakers (L2 English) and found that the participants did not apply the V2 rule correctly in L3 German, even though this is a word order rule which Swedish and German share (as opposed to English). In the light of the results transfer research had reached at that time, Dentler did not find it plausible that L2 transfer would exert such an influence that it would hinder L1 Swedish syntax from being transferred. Therefore, Dentler did not interpret these results as L2 transfer (as Vogel 1992 did), but, in line with Pienemann’s (1998) Processability Theory (henceforth PT), as typical stages of word order acquisition that all learners of German go through, independently of the structure among the background languages (2000: 84).

In Klein Gunnewiek’s dissertation (2000) we find a longitudinal study of 24 informants acquiring German as an L3. The main question for this research was whether PT can be confirmed, irrespectively of background languages. The informants were L1 speakers of Dutch and had English and/or French as an L2. According to Klein Gunnewiek the results did not confirm PT, i.e., the informants did not pass through the developmental stages suggested by PT. Some structures were acquired in a different order, and some were not present at all, and importantly there was variation within subjects, based on the task (2000: 202–210). Klein Gunnewiek explains this in the following way: L1 Dutch and L3 German are so closely related that the learner can make use of Dutch vocabulary, when producing L3 German, at an initial stage, and thereby also make use of the Dutch grammar when producing L3 German, that is to say, they do not behave like true beginners. Moreover, the L2s French and English supply the L3 learner with more language knowledge that hinders the learner from passing through the suggested PT developmental stages. And, as a last point, she notes the fact that the learners use a lot of chunks, which are taken from the lexicon, and thus are not syntactically analyzed.

To sum up, these early L3 syntax studies all started with different research questions, and thereby opened up a sea of possibilities for interpretation of the results and provided the groundwork for what has now developed into a research field of its own.

In 2001, four different studies were presented at one and the same conference in the Netherlands (Bardel 2002; Leung 2002; Sjögren 2002; Vinnitskaya et al. 2002). They all dealt with L3 syntax and transfer from both L1 and L2s, and they all showed that L2 (besides L1) plays a role. These studies have been developed and the results have been re-analyzed in more sophisticated ways, resulting in some models for transfer of syntax in L3 acquisition.

In 2004, Flynn et al. proposed the Cumulative Enhancement Model (CEM) for L3 syntactic acquisition, (a model that makes use of the Vinnitskaya et al. 2002 study). They studied the acquisition of the English Complementizer Phrase (CP), more specifically restrictive relative clauses. The structure of the CP is dependent on a language's head-directionality. English, Spanish and Russian are head-initial languages and Kazakh and Japanese are head-final languages. By comparing three groups of learners of English, (i) L1 Kazakh and L2 Russian, (ii) L1 Spanish and (iii) L1 Japanese, the authors came to the conclusion that two groups (i and ii) resembled each other, whereas one (iii) behaved differently. This difference was attributed to the fact that the participants of the third group (L1 Japanese) do not have the head-initial parameter present in their L1, whereas the two first groups (i and ii) have already acquired a language (as L1 or L2) with the head-initial parameter. With these findings, they corroborate the CEM — all previously acquired languages can influence the acquisition of a third (in a positive way). Further, they compared these results to those of two groups of children (one group of L1 learners of English and a second group acquiring Kazakh and Russian simultaneously). The Japanese L1 speakers (group iii) behaved like children acquiring English as an L1, which is explained by the fact that there is no positive evidence for head-finality present in the background grammar. Moreover, the group of children who learned Kazakh and Russian simultaneously showed the same acquisitional pattern as both the L1 Japanese group and the L1 English group. Flynn et al. suggest that this is because the L2 is still in progress and can therefore not be transferred. To summarize, with the impressive studies by Flynn et al. (2004, 2008) and Vinnitskaya et al. (2002), the issue of how positive transfer is manifested is clearly explained and confirmed by the CEM. Flynn (2009) also addresses the question of access to UG in L2, L3 and Ln acquisition, and proposes that UG is accessible and constant, independently of how many specific language grammars are being created.

Leung (2002) addressed the questions of access to UG and transfer of morphosyntax in L3 acquisition, by studying the features associated with the Number- and the Determiner Phrase. In Leung (2005a) this was further investigated; she had two groups of learners of French, one was formed by L1 speakers of Cantonese with English as an L2 and the other by L1 speakers of Vietnamese and no prior L2. In that way, she could compare the acquisitional pattern of an L2 and an L3. In line with Flynn et al. (2004) she found transfer from both L1 and L2 in L3 syntax. This study was later extended to comprise the acquisition of tense and agreement features (Leung 2006). Here she tested both the Full Transfer Full Access (FTFA) hypothesis, as proposed by Schwartz and Sprouse (e.g., 1996), the weaker hypotheses, namely the Minimal Tree Hypothesis (Vainikka & Young-Scholten, e.g., 1996) and the Valueless Feature Hypothesis (Eubank, e.g., 1994) and the Failed Functional Feature (Hawkins & Chan 1997). According to the FTFA everything can be transferred from an L1, UG is accessible and an L2 can be acquired successfully, whereas the weaker hypotheses suggest that L2 acquisition is impaired, due to the fact that no, or only some, functional features can be accessed by UG, and if a functional feature or feature strength is not

present in the L1, the L2 learner will not acquire it. Leung's (2006) study showed that there is a difference if the learner is acquiring an L2 or an L3, in that she found strong L2 transfer from English into L3 French, but she did not find strong transfer from L1 Cantonese into L2 French. This difference is attributed to the role of typological proximity, i.e., if there is positive evidence of similarity of a background language and the TL, these features can be transferred to the TL. But, if there is no evidence in the input of a specific feature, it will not be transferred from any background language.

In Na Ranong and Leung (2009) the above presented findings are challenged; their study comprises two groups, one with L1 Thai, L2 English and L3 Chinese (TL), a second one with L1 English and L2 Chinese (TL). The results interestingly show that "L1 plays a privileged role in both L2 and L3 acquisition of syntax" (2009: 185), i.e., there are no clear instances of L2 transfer. In discussing the results Na Ranong and Leung suggest that it might be the case that if two languages are typologically proximate transfer from one particular background language may be favoured, irrespective whether it is an L1 or an L2. The findings from Na Ranong and Leung conflict with those of Leung (2005a, 2006) where there was no preference for L1 transfer.

Bardel and Falk (2007) and Falk and Bardel (in press) are also based on ideas originally put forward in Bardel (2002) and Sjögren (2002). In the 2007 study, the role of the L2 in syntactic transfer was discussed through the comparison of two groups' L3 acquisition of the placement of sentential negation (an issue closely associated with the V2 rule) in either L3 Swedish or Dutch at the absolute initial state. One group had an L1 with V2 and an L2 without V2, and the other group had an L1 without V2 and an L2 with V2. This design made it possible to pinpoint the transfer source. The results demonstrated that the group with an L2 with V2 correctly transferred this structure into the L3, whereas the group, which had V2 only in their L1, did not transfer this structure. The authors explained this behaviour by L2 transfer, and suggested that the L2 status factor (cf., Williams & Hammarberg 2009 [1998]) enables L2 syntactic structures to be transferred into an L3, independently of typology, and may block L1 transfer from appearing even though it would yield target-like structures. Bardel and Falk (2007) also investigated a second issue, specifically the theory of IL development in stages. Håkansson et al. (2002) incorporated the Developmentally Moderated Hypotheses (DMTH) into PT and studied Swedish L1 speakers acquiring German as a foreign language (i.e., L3, since they had all acquired English as an L2). They argued against syntactic transfer from L2 into L3, suggesting that all learners pass through the same developmental stages, in the same order and DMTH can only facilitate the process (in terms of speed), not change it. Bardel and Falk (2007) challenged this by arguing that what Håkansson et al. found in their data were traces of L2 transfer from English (cf., also Klein Gunnewiek 2000 above). Bohnacker (2006) made a similar claim, in a study where she compared Swedish native speakers acquiring German as either L2 or L3, and came to the conclusion that the findings from Håkansson et al. could not be confirmed. Instead she found clear L1 transfer of the V2-rule into L2 German, but in her second group where German was an L3, the pattern was different and the V2-rule was not transferred at all, whereas L2 English structures were (cf., Klein Gunnewiek 2000 and above).

In a later study by Falk and Bardel (in press), the L2 status factor is further tested on two groups of intermediate learners of German as an L3. One group has L1 English and L2 French and the other group has L1 French and L2 English. Here they test the participants on the placement of object pronouns in German main and subordinate

clauses, a design which also makes it possible to detect the source of transfer (pronouns are pre-verbally placed in TL main clauses and in English, and post-verbally in TL subordinate clauses and in French). The results corroborate the presence of the L2 status factor noted in the 2007 paper, even at an intermediate proficiency level of the L3. They discuss the L2 status factor in terms of the similar cognitive conditions under which L2 and L3 are acquired (age of onset, learning situation and awareness of the learning process), whereas the L1 is acquired under different conditions and in a completely different way.

The hypotheses discussed above (the CEM and the L2 status factor and also the L1 transfer hypothesis) have been tested by Rothman and Cabrelli-Amaro (2010). They compared the acquisition of French and Italian as either L2 or L3 learners (all had L1 English and one group had L2 Spanish), with a special interest in the Null-Subject Parameter (NSP) and related phenomena in the two groups. While Spanish and Italian are pro-drop languages, English and French are not. The data show that properties of the NSP are not transferred from L1 English, but from L2 Spanish into L3 French or Italian. Importantly, this transfer is shown to be both positive (when there is a correspondence between L2 and L3) and negative (when there is no such correspondence). These results clearly dismiss the L1 transfer hypothesis in L3 acquisition, and corroborate the L2 status factor as proposed by Bardel and Falk (2007, see above). The CEM as proposed by Flynn et al. (2004) suggested that both L1 and/or L2 can be transferred equally, but only in a positive sense yielding correct structures if the parameter/feature is present in either of the background languages (cf., also Leung e.g., 2006), hence it makes no such strong prediction as the L2 status hypothesis. Rothman and Cabrelli-Amaro (2010) do not dismiss the CEM, instead they suggest a modified version where (psycho)typology may be a factor influencing the transfer source. In Rothman (2010) further investigations of closely related languages are made. Rothman tested two groups of learners of Brazilian Portuguese as an L3, one with L1 English/L2 Spanish and a second group with L1 Spanish/L2 English on the acquisition of noun-raising, a phenomenon that is present and obligatory in all languages of the study, except for English. All learners successfully control the noun-raising rule, a fact that Rothman explains in terms of transfer from either L1 or L2. He therefore argues in favour of the transfer source being governed by typological proximity between the languages, in support of a Typological Primacy Model (TPM). This model could explain the findings of Klein Gunnewiek (2000, see above) and the ones from Leung (2009), who also conducted studies on two typologically proximate languages and one that is not proximate.

To sum up, in recent years an impressive number of formal syntactic studies have been conducted, and mainly, three models have been suggested:

- All background languages have a positive effect on the acquisition of subsequent languages, as specified by the CEM, Flynn et al. (2004),
- L2 may hinder L1 transfer in both a positive and negative manner, as predicted by the L2 status factor, Bardel and Falk (2007),
- Typological factors determine transfer from either L1 or L2, the Typological Primacy Model, Rothman (2010 & in press).

These three models result from different studies, with different language combinations and different data collection methods. The CEM stems from a language combination that involves languages that do not all share a particular feature. The results show that positive transfer occurs from any background language that possesses the feature in question, and this is also found in Leung (2006). The TPM, which has its origin in the study of the acquisition of typologically very proximate languages (even on a psychotypological level) contrasted with languages that are typologically distant, makes the assumption that according to economy of acquisition the most proximate language becomes the source for transfer, independently of the language being an L1 or an L2. Bardel and Falk (2007) make a strong claim for the L2 status factor, namely that L2 will be favoured as transfer source. The L2 status factor stems from research on language combinations that are neither very distant, nor very proximate. Future research will probably benefit from an integration of these models.

2.5 Neurolinguistic perspectives

When turning to neurolinguistics we have the aim of further understanding how languages are represented and processed in the brain, and if any tendencies from the results can enhance our understanding of the preferred source language of transfer in L3 acquisition.

In recent years a growing interest has been shown in the contribution neuroimaging (henceforth NI) can make in the understanding of language acquisition, see for instance Fabbro (2001) or the special issue on *Neuroimaging and research into second language acquisition* (Sabourin 2009). This issue relates to the traditional areas of concern in L2 research, i.e., the role of proficiency, age of acquisition, ultimate attainment, language transfer, method of acquisition, aptitude and motivation (questions that also apply to L3 acquisition). “Neuroimaging studies are able to provide us with insight regarding the nature of how these factors affect the on-line processing” (Sabourin 2009: 6). When working above all with transfer aspects in L3, the most important questions might be, are L1, L2 and L3 represented in the same cerebral region, or in distinct parts of the language cortex, or are two or more languages mediated by a shared zone? Is this localization dependent on proficiency in the language, or on age of onset? Is it possible to see activation of one or more languages during language production? The use of various NI technologies (e.g., PET, fMRI and EEG¹¹) have made it possible to see which areas in the brain are in use when processing different languages. During the last decades NI studies on bilinguals and multilinguals have been conducted, with the aim of identifying one area in the brain associated with different languages, or different areas associated with different languages respectively. This type of multilingual research is very much in its infancy and as we will see, the results contradict each other, see

¹¹PET: Position Emission Tomography, by which regions of blood flow representing brain activity are measured and presented on a two- or three-dimensional map.

fMRI: functional Magnetic Resonance Imaging, measures oxygenation levels in the brain to indicate where brain activity is taking place.

EEG: electroencephalography, is a direct measure of neural processing and can determine when certain cognitive processes are occurring.

PET and fMRI can show where linguistic processing is occurring while EEG can tell us when linguistic processing is occurring.

Franceschini et al. (2003) who critically summarized the field, in their state of the art article *Lexicon in the brain: What neurobiology has to say about languages*.

Broca's and Wernicke's areas are considered to perform central roles in language function; the former is responsible for grammar, and the latter, for lexicon and phonology. Damage in these areas leads to language disorders. There is a vast literature that examines aphasia in bilinguals. A majority of these studies report that bilinguals' languages may be impaired to different degrees and that they also may recover their two languages independently and/or with different level of success, e.g., Albert and Obler (1978), Fabbro, (2001), Fabbro and Paradis (1995), Gomez-Tortosa et al. (1995), Paradis and Goldblum (1989). Studies like these suggest "that different brain areas are recruited for learning and processing the first language (L1) and the second language (L2)" (Dehaene et al. 1997: 3809). Another interesting study that also argues in favour of this hypothesis is Black and Ronner (1987), which shows that different languages can be selectively disrupted in polyglots by electrical stimulation of discrete areas in the brain. Studies that corroborate the opposite, that is to say the hypothesis of L1 and L2 being stored at the same place in the brain independent of proficiency and/or age of onset are for example Chee et al. (1999), Illes et al. (1999), Klein et al. (1994, 1995, 1999) and Perani et al. (1998), where it has been found that both early and late bilinguals utilize common neural substrates for the representation of native and second languages.

One of the first studies that used NI technology on healthy bilinguals was the Klein et al. (1994, 1995) study in which a word processing task was used. In this study participants were asked to generate synonyms and equivalent translations. The brain showed matching activation patterns when the participants produced either English L1 or French L2; there was however a slightly larger area that was activated when the subjects translated into their L2, indicating that a language learned later in life (here after the age of 5), requires more neural processes than does the L1.

Another study is Illes et al. (1999), which found that the site of neural activation was identical for the L1 English and L2 Spanish (the L2 learnt a decade later in life). These "findings suggest that, at least, to the resolution provided by fMRI, a common neural system mediates semantic processes for the two languages in the bilingual brain" (Illes et al. 1999: 356). The same results were found in Klein et al. (1999) who, through a verb repetition/verb generation task found that the same neural substrates were used for both English and Mandarin.

Results that contradict the "similar substrate" findings are presented by, for instance, Dehaene et al. (1997), Kim et al. (1996), Kim et al. (1997), Perani et al. (1996) and Pillai et al. (2003), and we will discuss them briefly below, starting with Kim et al. (1997) who used fMRI to compare early bilinguals with late bilinguals. These authors found that, within the frontal lobe, i.e., Broca's area, L2s acquired later in life are spatially separated from L1s, whereas early bilinguals tend to represent both their languages in common frontal cortical areas.

Dehaene et al. (1997) carried out an fMRI-study on eight native speakers of French, with English as an L2. They compared the architecture of the L2 learnt after the age of seven and compared it with the architecture of the L1. They found that when listening to an L1, the same set of areas were always activated, whereas listening to an L2 activated a highly variable network of left and right temporal and frontal areas, sometimes restricted only to right hemispheric regions. These results support the hypothesis that L1 acquisition relies on a dedicated left-hemispheric network, while a

late L2 is not necessarily associated with a reproducible biological substrate. Dehaene et al. also underline that they carried out a similar study (Perani et al. 1996) using PET-scan technology with comparable subjects, but they “failed to observe activation while listening to L2” (1997: 3814). They discuss the possible factors for the different behaviour of the L2 (also different behaviour between subjects), suggesting that different cognitive methods are used when acquiring an L1 and an L2 respectively. Further, the inter-subject variability might be explained in terms of differences in their brains, i.e., when there is a difference when comparing the architecture of subjects’ L1, there is also a putative difference when comparing subjects’ L2. A final factor that they discuss is the role of age of onset (with reference to brain maturation), and that of proficiency in the languages.

Pillai et al. (2003) studied regional activation during semantic and phonological tasks performed by individuals with Spanish L1 and late English L2. They found a divergence in activation topography between semantic and phonological tasks performed in the L2, but not in the L1, which suggests that neural networks utilized for phonological and semantic language processing in the L2 may not be similar to those in the L1. In light of these findings on the L1/L2 difference, Ullman (e.g., 2001) discusses the plausibility of L1 and L2 having different status based on the distinction between declarative and procedural memory. In L1, we make use of our declarative memory for vocabulary, and aspects of grammar are associated with the procedural memory; these two memories are located separately in the brain. The declarative memory also stores special grammatical L1 forms. But, an L2 is more dependent on declarative memory as a whole, and only with increased proficiency is there a shift towards the procedural memory for an L2 (Ullman 2009, cf., also Paradis 2004, 2009).

As seen, some of the results contradict each other completely, but the activities in this area of research have just started. It is sometimes argued that the different NI technologies used generate different results (cf., for instance Dehaene et al. 1997 above). On the other hand there are studies that make use of different techniques that do not contradict each other at all, as discussed in the review article by Abutalebi et al. (2001). These authors come to the conclusion that all techniques used can enhance our understanding of language organization in the multilingual brain.

A related question to that of techniques is that of tasks; it is, by some, argued that differences in results are reflections of different task-designs. For instance, Franceschini et al. (2003: 164) argue that “not only do we have to distinguish the classical production, comprehension and reading tasks, but also the crude physical form of the input: e.g., visual or auditory input in comprehension tasks leads to differences in co-activated brain structures”. According to Paradis (2004: 153–158) there are several more general problems related to the tasks used in NI studies of language and bilingualism. The tasks are often not part of the natural use of language and the stimuli are often not language-relevant and do not reveal language processing. Further, Paradis (2004, 2009) has also pointed out that NI results cannot be generalized from single words to the language system (phonology, morphology, syntax). It is of importance to interpret data from NI studies on words and on sentences as different and incomparable results, since phonology, morphology and syntax are supported by procedural memory in L1, while words used in isolation “are conscious and as such are sustained by declarative memory in both L1 and L2” (2009: 145). This is a problem that is not always taken into account when comparing different results.

In his review article de Bot (2008) points out some drawbacks with NI in multilingual research, and his conclusion is that as yet NI has not fulfilled the high expectations raised by the technical progress and the large number of studies that have been carried out (2008: 111). Sabourin (2009: 6) sees the advantages of incorporating NI research into the traditional field of SLA, where questions about “the role of proficiency, age of acquisition (or onset), ultimate attainment, language transfer, method of acquisition, aptitude, motivation, and many others” are still debated and interesting. Sabourin (2009: 6) also points out that “while more traditional (non-neuroimaging) methods of investigating SLA provide us with much more information regarding the mental process involved, neuroimaging data must also be considered in order to provide us with neurologically adequate models of SLA”.

In conclusion, this area of research has just started and the different results are amazing in all respects. The technology is developing and we believe that in the near future NI studies will add to the results obtained from the linguistic field of L3 acquisition.

2.6 Some remarks on methodology and a look ahead

As we have seen, among the earlier L3 studies we find a number of case studies (e.g., Bardel 2002; De Angelis & Selinker 2001; Vogel 1992; Williams & Hammarberg 2009 [1998]), or studies based on one single group of learners all with one L1 and with no control group (e.g., Bouvy 2000; Dentler 2000; Ecke & Hall 2000; Sjögren 2002; Stedje 1977). Other early studies are based on a group of learners with a mixed background of languages, all acquiring the one and the same L3 (e.g., Klein 1995). Such studies have led to interesting hypotheses and they all constitute an important base for continued research. It is an indisputable fact that L2 can influence L3 to at least as high a degree as L1, both at the lexical and the syntactical level. But, as already noted above, it is not always clear which background variable is decisive for transfer from L1 or L2 to L3. There is a need for well-designed studies, with particular language pairings, in order to distinguish the factors generally held to be important for the activation of previously acquired languages (as seen in section 2.3). In order to separate for instance the L2 status factor and the typology factor, much energy has to be spent on selecting and finding complementary groups that constitute mirror images as to their background languages, as well as to the structures or features under investigation. It is also important to monitor for structures that could be claimed to be dependent on general developmental IL structures, based on e.g., processability constraints. It is encouraging to see that the methodological approaches to L3 research have developed, as can be noted in studies of larger data collections with carefully planned combinations of languages as to both L1, L2 and L3 (e.g., Falk & Bardel in press; Llama et al. 2010; Rothman & Cabrelli-Amaro 2010).

An important issue to clarify is the role of proficiency level in the L2(s). It has been suggested that both low and high proficiency of an L2 can be decisive for transfer into the L3 (cf., section 2.3.3), something that could be related to the difference between explicit knowledge and implicit competence. It is reasonable to assume that what is known explicitly and subserved by declarative memory at a low proficiency stage of L2 is easy to transfer into an L3 of the same character. If, instead, implicit competence has developed at a very advanced stage of L2, such competence is transferred only in an L3

with a similar status. In order to obtain more understanding of the proficiency factor in future research more precise measures of the level in the L2(s) will be necessary. This is a very complex matter, above all for practical reasons (when we are dealing with multilinguals, the number of different language tests can be insuperable) and also when it comes to choosing the appropriate test (comprehensive standardized tests vs. specially designed tests that focus on the research topic, written vs. oral tests, self-estimating questionnaires etc.). Nevertheless, this has to be done in some way, in order to be able to come to any definite conclusions about the proficiency factor.

As for the typology factor, it is extremely important to define which aspects of typology one is dealing with (cf., section 2.4.1). For instance, typology in terms of similarity between structures, and what role it might play in the learner's mind, can be tested if languages involved are at a similar distance from each other (e.g., English, French and German). If two of the languages are closely related and very similar at a global level the relatedness factor and possibly also the psychotypology factor will interfere. In close connection to the issue of psychotypology is the manner in which the language is acquired. It is sometimes assumed that all L2s are acquired in the same way as the L3 under study, but if an L2 is acquired in an informal manner (like an L1), completely different results may be reached which will give us further insights about factors that have an impact on the source for transfer in L3 acquisition.

Related to both the typology and the proficiency issue is the fact that knowledge of English is so wide-spread that it can be difficult to find controls without L1 or L2 knowledge of this language. Moreover, many learners have such a high proficiency level of L2 English in Europe, that this language acquires something like an L1 status. Contributing to this phenomenon is an increasing presence of English in the input, via different media. A similar situation, but with other L2s, can be identified in other areas, for instance in the USA, where many come in contact with e.g., Spanish L2, at an early age and in an informal setting, or as a heritage language. The field could benefit from larger projects with data collections made across borders, in order to include, for instance, learners with English as L1 to compare with learners with English as L2, and to distinguish clearly between early and late L2 acquisition. A high priority would also be to search for multilingual learners with no knowledge of English at all as controls.

Moreover, we would welcome new and varying testing techniques in order to test different abilities in one and the same group of learners. Different abilities may also be of varying degree of difficulty for learners with a particular combination of background languages, depending for instance on the degree of similarity between languages at different linguistic levels. For instance, Swedish speaking learners of Danish may be helped by the fact that their L1 is closely related to Danish when it comes to the reading ability, thanks to many lexical and grammatical similarities, but hardly when it comes to understanding or producing Danish pronunciation, which is very different from Swedish.

The grammaticality judgement/correction task (GJ) is a useful tool when it is necessary to tap knowledge of particular syntactic structures, and it gives us the opportunity to create stimuli consisting of TL-structures, L2-structures, transfer from L1, and structures corresponding to a certain developmental stage (cf., 3a–d). Imagine for instance an English L1 speaker with L2 knowledge of French, who is acquiring Swedish L3. In order to test hypothetical transfer sources as well as a hypothesis of no transfer, the researcher can construct the following types of stimuli:

3. a. STIM. 1: *Ginger äter inte.* (TL Swedish)
Ginger eats not
- b. STIM. 2: *Ginger inte äter inte.* (transfer from French L2)¹²
Ginger not eat not
- c. STIM. 3: *Ginger gör inte äta.* (transfer from English L1)
Ginger does not eat
- d. STIM. 4: *Ginger inte äter.* (IL structure)
Ginger not eats

Yet another advantage of GJ tests is that at an initial state, learners can more easily judge input than produce output. However, as opposed to GJ tests, oral production gives us information about online processing, and options that the researcher may not have thought about can reveal information about the status of the IL. Let us illustrate this with our previous example (2), here repeated in (4):

4. *Jag vet het, men jag vet niet, men jag vet inte, hoe het på svenska, på svenska eh s-säger.*
I know it, but I know not, but I know not, how it in Swedish, in Swedish eh s-say.
(Normal: Dutch L2, Italics: *Swedish L3*)

As mentioned, this learner incorrectly transfers the Dutch verb-final structure into Swedish, an option that was not expected in the study, the aim of which was originally to investigate the placement of negation. By the use of online production, the researchers received more information about the IL than expected and new insights on L3 acquisition were gained. This utterance also raises another issue for further investigation, namely that of the interplay of syntax and vocabulary in language acquisition. Is the transfer of syntax parallel to that of vocabulary, or are they separate phenomena? Is it the Dutch word *het* that triggers the Dutch-like word order? As we have seen, some researchers (e.g., Bouvy 2000) regard transfer from L2 as a matter of relexification only, and according to others (e.g., Dentler 2000; Håkansson et al. 2002) there is no transfer from L2 in the syntax. Moreover, according to recent neuro-linguistic accounts (Paradis 2004, 2009; Ullman 2001, 2009) the grammar of a non-native language is dependent on declarative memory at least when formal teaching is involved. Since vocabulary is also held to be sustained by declarative knowledge, one could assume that grammar and vocabulary are more closely related to each other in the developing L2 than in an L1.

Research in the complex area of L3 acquisition would benefit from new combinations of different tasks in the data collection procedure, as well as from open-minded research questions, in order to ensure that no aspect of the L3 IL is overseen.

¹²Indeed, there are cases of learners with several L2s and these L2s could then be included in the test battery.

CHAPTER 3.

THE ROLE OF THE L2 IN L3 ACQUISITION: THE CASE OF GERMANIC SYNTAX

C. Bardel and Y. Falk (2007) *Second Language Research*.

3.1 Introduction

The aim of this article is twofold:

- (a) to evaluate the Developmentally Moderated Transfer Hypothesis, as proposed by Håkansson, Pienemann and Sayehli (2002).
- (b) to argue, in opposition to Håkansson et al., for syntactic transfer from L2 to L3, by presenting new data on sentence negation in the acquisition of L3 Swedish and Dutch.

In the last two decades, studies have emerged which indicate that the acquisition of a non-native language is qualitatively different from L1 acquisition, and that acquisition of a true L2 is also different from that of subsequent non-native languages (L3), since the L3 learner has already acquired (at least) one L2 (up to some level), and this knowledge plays a role in the acquisition of other foreign languages (Cenoz, 2001, 2003; Cenoz & Jessner, 2000; Hufeisen, 1998). It has been proposed that L2 status is an important factor in L3 acquisition: Williams and Hammarberg [2009 [1998]] and Hammarberg (2001) suggest that among the languages known to the learner (L1 and L2(s)), the L2 is more likely to have an impact on the process of L3 acquisition. The so-called L2 status factor will be further investigated in this article.

Most studies dealing with L2 influence concentrate on vocabulary, but some syntactic studies have also emerged in recent years (Bardel, 2000, 2006; Bardel & Falk, 2004; Bohnacker, 2005, 2006; Falk, 2002; Flynn, Vinnitskaya & Foley (2004); Leung 2002, 2003, 2005a, 2005b; Sjögren, 2002). In this domain, a number of researchers have considered the impact of the L2 on the L3 to be insignificant. A position against L2 syntactic transfer is taken by, for instance, Håkansson et al. (2002), who propose the Developmentally Moderated Transfer Hypothesis (henceforth DMTH) to account for transfer within Pienemann's (1998) Processability Theory (henceforth PT).¹³

In the present study we argue against the DMTH and PT and in favour of syntactic transfer from L2 to L3, by comparing learners with different L1s and L2s who acquire Swedish and Dutch as L3. The study deals with the placement of negation in the initial state of L3 Swedish and Dutch. In the target languages, sentence negation is post-verbal in the main clause due to raising of both thematic and non-thematic verbs to a complementizer head, giving rise to the so-called verb-second (V2) rule, a word order rule shared by all Germanic languages except English. Sentence negation is an early interlanguage (IL) feature, it is easily identified in IL syntax, and further, if the learner places the negator after the finite verb in the main clause, this is a clear indicator that verb raising has occurred. The design of the data collection (the learners fall into two groups: one, whose L1 is a V2 language but whose L2 is not, and another, whose L1 is a non-V2 language but whose L2 is a V2 language) allows the study to test a non-transfer hypothesis, as well as hypotheses of transfer from either L1 or L2.¹⁴

¹³ But see Klein Gunnewiek (2000) and Bohnacker (2005, 2006) for critical discussion of the developmental sequences suggested by PT and DMTH in relation to transfer.

¹⁴ Negation in subordinate clauses is excluded from consideration. This is because placement of negation in subordinate clauses is pre-verbal in all the relevant languages (L1s, L2s and L3s), and thus it is not possible to test for transfer.

The study deals with learners in the initial state of acquisition (Schwartz & Sprouse, 1996). In order to obtain data that include the very first words produced in the target language, absolute beginners were recorded during their first lesson in the foreign language. The target language was taught via the so-called Direct Method (Baker & Prys Jones, 1998: 671), according to which learners produce semi-spontaneous speech in interaction with their teacher.¹⁵

3.2 Views on transfer

3.2.1 Transfer vs. non-transfer hypotheses

Research on the presence or absence of transfer in L2 acquisition has mainly given rise to two competing views: the idea that learners to some extent rely on their L1 and transfer features of the L1 into the L2 (transfer hypotheses), and the competing idea that they do not (non-transfer hypotheses).

Transfer hypotheses differ in terms of the presumed impact of the L1 grammar. Schwartz and Sprouse (e.g., 1994, 1996) argue in favour of a full transfer model, i.e., the Full Transfer/Full Access Hypothesis (FT/FA), according to which all syntactic properties of the L1 initially constitute a base for the new developing grammar, which is constructed with the involvement of Universal Grammar. Other transfer hypotheses do not predict a complete transfer of the L1 grammar. These weaker views all suggest different levels of involvement of the L1 grammar; for instance, that there is only transfer of the lexical categories, as alleged by Vaninikka and Young-Scholten (1994, 1996) or that both lexical and functional categories are transferred, but that feature strength (the property that drives overt movement) is not (Eubank 1993/1994, 1994). After this initial transfer phase, the learner is assumed to construct an interlanguage grammar (ILG) on the basis of L2 input and of UG.

The non-transfer hypotheses suggest that the learner's L1 is of minor importance in the acquisition process. Proponents, for instance Clahsen and Muysken (1986, 1989), argue that neither the L1, nor UG are involved; there are only general (cognitive) learning strategies that guide the learner in the development of a new grammar. Others, for instance Epstein et al. (1996, 1998), suggest that UG alone is involved, and thus the learner will initially create an ILG drawing on UG options. The original version of PT (Pienemann 1984, 1998) also adheres to the idea that there is no transfer in the learner's developing grammar, but instead inevitable universal processability stages, independent of the L1 (see section 3.2.2 for further discussion).

Regardless of the basic theoretical assumptions (such as UG, general learning strategies, or processability hierarchies), transfer hypotheses all share the notion that the acquisition of a particular language will look very different depending on the learner's L1, whereas the non-transfer hypotheses predict that the acquisition of a particular

¹⁵ This method of data collection has the disadvantage that one might get relatively few occurrences of the item under investigation, and different numbers of tokens from different learners. However, the method captures real beginners' speech in a foreign language, and allows evaluation of the PT since oral production is involved and not written metalinguistic tasks (Pienemann, 1998).

language will look more or less the same, since all learners are assumed to behave similarly.

3.2.2 Processability Theory and the Developmentally Moderated Transfer Hypothesis

The theoretical base of PT (Pienemann, 1998) is a universal hierarchy of processing procedures, and follows Levelt's (1989) model of speech production. Lexical functional grammar (LFG) rules determine the building of phrasal categories. PT hypothesizes that processing procedures and the necessary exchange of grammatical information between constituents are acquired in a specific implicational sequence: 1. Lemma access; 2. Category procedure; 3. Phrasal procedure; 4. S procedure; 5. Subordinate clause procedure. The key issue in (original) PT is that every learner has to develop the ILG stepwise, as in 1-5 above, constrained by the developing ability to process, which is independent of the L1.

However, with the incorporation of the DMTH, PT does not completely exclude the possibility of transfer: 'PT predicts that, regardless of linguistic typology, only those linguistic forms that the learner can process can be transferred to the L2' (Håkansson et al. 2002:251). In other words, as claimed further by Pienemann, Di Biase, Kawaguchi and Håkansson (2005:147), the processability of the language being acquired acts as a constraint on transfer and may override, for instance, typological distance/proximity. Moreover, processability has a facilitating effect, which operates in the case of structural overlap between L1 and L2, but only when 'the L2 has developed to the point at which the L1 structure is processable' (Pienemann et al. 2005:147). In other words, it seems as though PT/DMTH accommodates only positive transfer, and not negative transfer. Hence, Pienemann et al. (2005) do not exclude the possibility that transfer might have an impact on acquisition, which might be manifested in terms of accuracy or speed, once the process is acquired. This is illustrated by Habertzettl's study (2000) of the acquisition of split-verb constructions¹⁶ by Turkish learners of German who 'acquired it categorically and with native-like correctness once the structure emerged' (Pienemann et al. 2005: 145).

3.2.3 Håkansson, Pienemann and Sayehli (2002) – some criticisms

Håkansson et al. (2002) question whether there is transfer from both L1 and L2 through an investigation of the non-native acquisition of the verb second (V2) construction. In the V2 construction, finite verbs (either thematic or non-thematic) occupy the second position in the main clause, whether the sentence-initial position is occupied by the subject or a non-subject (Holmberg & Platzack 1995; Vikner 1995). As already observed, the raising of the finite verb to this position leads to the post-verbal placement of negation. These properties are illustrated in examples (1)-(4):

¹⁶ The split-verb construction allows constituents to separate the finite part of a verb construction from non-finite parts like participles or particles as in (i):

- (i) er hat ein Bier getrunken
he has a beer drunk
'He has drunk/drank a beer.'

1. Ginger pratar nu.
Ginger speaks now
'Ginger speaks now.'
2. Nu pratar Ginger.
Now speaks Ginger
'Now Ginger speaks.'
3. *Nu Ginger pratar.
Now Ginger speaks
4. Ginger pratar inte.
Ginger speaks not
'Ginger doesn't speak'

Håkansson et al. relate the issue of transfer to the core ideas of PT, and with data from Swedish learners of German, they challenge the FT/FA hypothesis (Schwartz & Sprouse, 1994, 1996). The Håkansson et al. data show that a group of Swedish native speakers does not transfer the V2 rule from the L1, although the rule applies to both L1 Swedish and target German. In spite of the word order correspondence between Swedish and German, the learners in the Håkansson et al. study incorrectly place the verb in third position, when the clause is non-subject initial, as in the following example (2002: 257):

5. *Dann er waschen eh der Schlange.
then he wash eh the snake

This sentence would be just as ungrammatical in Swedish as in German:

6. *Sen han tvätta eh ormen.
then he wash eh snake-the

Håkansson et al. reach the conclusion that even though Swedish and German are typologically proximate, the hypothesis of full transfer from L1 (as suggested in FT/FA) cannot be corroborated. Instead, the authors claim that the data can be accounted for by processability constraints, according to which certain properties of any second language are acquired in a predictable implicational order (i.e., first a then b, not b before a) independently of earlier acquired languages.

A fundamental question is how developmentally moderated transfer can be either confirmed or disconfirmed. If the ILG has to wait for a positive transfer effect until it has reached a particular processability level, then transfer itself becomes superfluous. If the structure is already processable in the ILG, transfer is not a necessary strategy. There is of course the possibility that a structure becomes processable in the target language because of the facilitating effect of positive transfer from L1, and it would be interesting to investigate if this is the case, by comparing learners with different L1s.

An additional factor in the study is that the subjects acquired English as an L2 before they started learning German as an L3. Håkansson et al. briefly discuss the possibility of transfer from L2 to L3:

Given that in our study German was in fact the third language of the informants and that English was the second, it may be easy to conclude that the non-application of INV (or V2) was due to transfer from English. In fact, this explanation is popular amongst Swedish schoolteachers of German /.../ [who] disrespectfully term this phenomenon the ‘English illness’ (2002: 269).

This explanation is, however, rejected by the authors: ‘such a proposal is not compatible with the data from our study’ (2002: 269). It is hard to agree with this statement, given the design and results of the study. There is nothing in the data per se that clearly contradicts transfer from English L2. On the contrary, V3 structures are present in the L2 (English) and found in the actual output of the learners.

Thus, one might wonder upon what grounds Håkansson et al. refute the idea of L2 transfer into L3. The authors treat only a ‘transfer-all’ hypothesis as a theoretical possibility (p. 269), so that anything but transfer of a complete cluster of rules ‘shared by the L1, the L2 and the L3’ (p. 269) is rejected. It is the absence of a certain structure (‘declarative main clauses with preposed adverbs’) in some of the participants’ data that leads the authors to the conclusion that transfer from L2 (English) is not the case: ‘It is evident from this analysis that 6 of the 20 learners produce SVO only and no ADV. If one followed the transfer view, they would appear to have transferred selectively only one word order pattern known from their L2 (English)’ (i.e., SVO – CB & YF) (2002:269).¹⁷ It is not clear from the text, if ‘no ADV’ is equal to ‘no adverbs at all’ or to ‘no fronted adverbs’. Indeed, if the six participants produced sentences without adverbs, there were, of course, no fronted adverbs in these learners’ productions; but sentences without adverbs are grammatical in all three of the languages involved, so this would not tell us anything about transfer from any language.

On the other hand, it is possible to interpret Håkansson et al. as though the six learners produced adverbs, but not in clause initial position. But if this is the case, we do not know where in the sentences they were placed, an issue that could give us further information about the learners’ ILGs. There are, in fact, three possibilities for an adverb to appear in an SVO structure, even if it is not ‘fronted’: SVOA (*Er wäscht die Schlange (dann)*), SVAO (*Er wäscht (dann) die Schlange*) and SAVO (*Er (dann) wäscht die Schlange*).

The refutation of an L2 transfer hypothesis is thus based on the absence of adverbs – whether at all or in a particular position remains unclear – in some of the participants’ speech. This is a somewhat unexpected line of reasoning: the absence of a part of speech in oral production data can hardly be taken as an argument against transfer. The absence might, quite naturally, have other causes than transfer. An adverb is not an argument, but an adjunct, and, thus optional – there might be a lexical or semantic-pragmatic reason for the production of a clause without an adverb, or it may simply be the case that the learner has not acquired the appropriate lexical item.

Hence, the data presented by Håkansson et al. do not provide sufficient evidence against the L2 transfer hypothesis; on the contrary, according to the design and the results, it seems quite possible that L2 transfer is exactly what is taking place.

¹⁷ Unfortunately, what is presented in their tables is only the number of ‘main clauses with subject and verb’ (Håkansson et al., 2002: 256-7). The absence/presence of objects is not indicated. It is assumed that objects are present and placed in a final position.

Therefore, in this article we explore the possibility of L2 transfer into L3 by considering whether thematic and non-thematic verbs have raised over negation.

3.3 Negation

In this section, the placement of negation is briefly described in the languages relevant to the study (Dutch and Swedish as L3 - Dutch, English and German as L1 or L2 - Albanian, Hungarian and Italian as L1). We also survey some earlier studies of the acquisition of negation in non-native Swedish. Sentence negation will be described within a traditional generative framework, with the phrases VP-IP-CP (Chomsky, 1986), since the goal of our study – to account for transfer by comparing structures in different languages – does not require any further detailed description of Swedish and Dutch phrase structure (for a more detailed account see e.g., Platzack, 1998; Zwart, 1993).

3.3.1 Negation in Swedish

It has already been observed that the V2 property has consequences for the placement of the negative marker in the Swedish main clause. All finite verbs (regardless of verb type) are raised to C°, while the negation remains in its original position above the VP, as illustrated in (7). The same holds for other Germanic languages, except for English.

- 7a. Ginger pratar inte.
Ginger speaks NEG
'Ginger doesn't speak.'

- 7b. Ungerska är inte svårt.
Hungarian COP NEG complicated
'Hungarian isn't complicated.'

- 7c. Ginger har inte pratat.
Ginger AUX NEG spoken
'Ginger hasn't spoken.'

The acquisition of negation in L2 Swedish.

In his study of adult L2 learners of Swedish, Hyltenstam (1977; 1978) found systematic variation in the placement of negation in relation to the verb in a formal written test: correct placement was first acquired in main clauses with non-thematic verbs. In a second stage, correct placement in main clauses with thematic verbs was acquired. On the other hand, correct placement of negation in subordinate clauses (i.e., pre-verbal placement), was acquired in the subsequent third and fourth stages, first with thematic verbs (negation + thematic verb), then with non-thematic verbs (negation + non-thematic verbs).

Hyltenstam's results indicate that it is easier for a learner to place negation post-verbally (in the main clause) with respect to auxiliaries, than with respect to thematic verbs. And, it also indicates that it is easier to place negation pre-verbally (in the subordinate clause) with respect to thematic verbs than with respect to auxiliaries.

Relying on the results of Hyltenstam (1977; 1978), Pienemann and Håkansson (1999) build a hypothesis as to how acquisition of negation can be accounted for within the implicational order suggested by PT. This is illustrated in table 1.¹⁸

Table 1. Development of negation (Pienemann & Håkansson, 1999:416, table 19)

Hyltenstam's results	Predictions based on the processability hierarchy
Subordinate clause: neg AUX V	Level 5, step 2, subordinate-clause procedure
Subordinate clause: neg V	Level 5, step 1, subordinate-clause procedure
Main clause: V neg	Level 4, interphrasal procedure
Main clause: (AUX) neg V	Level 2, category procedure
Main clause: neg V	Level 2, category procedure

V=thematic verb, AUX=non-thematic verb

In short, Håkansson and Pienemann suggest that post-verbal negation with non-thematic verbs is acquired at level 2, whereas post-verbal negation with thematic verbs will not occur until the learner has reached level 4 in the PT hierarchy.

3.3.2 Negation in Dutch and German

Because of the V2 property, the placement of the finite verb in the declarative main clause is the same in Dutch/German as in Swedish:

- 8a. DUTCH: Ginger spreekt niet.
 8b. GERMAN: Ginger spricht nicht.
 Ginger speaks NEG
 ‘Ginger doesn’t speak.’
- 9a. DUTCH: Hongaars is niet moeilijk.
 9b. GERMAN: Ungarisch ist nicht schwierig.
 Hungarian COP NEG complicated
 ‘Hungarian isn’t complicated.’
- 10a. DUTCH: Ginger heeft niet gesproken.
 10b. GERMAN: Ginger hat nicht gesprochen.
 Ginger AUX NEG spoken
 ‘Ginger hasn’t spoken.’

¹⁸ The reader may have noticed that Hyltenstam’s results only represent target-like structures, which is the reason for excluding level 3 in the PT hierarchy, since it would yield an ungrammatical structure, namely Adv S V O.

3.3.3 Negation in English

Verb raising in English (which is not a V2 language) distinguishes thematic from non-thematic verbs, and this has a bearing on the surface pattern of the English negative clause. While non-thematic verbs raise to IP and leave negation in a post-verbal position, thematic verbs remain, uninflected, in the VP, as illustrated in (11):

- 11a. Ginger does not speak
- 11b. Hungarian is not complicated
- 11c. Ginger has not spoken

3.3.4 Negation in Albanian, Italian and Hungarian

The remaining L1s relevant to the present study, Albanian, Italian and Hungarian, are like English in not being V2, but differ from the previously described languages in that they have pre-verbal negative markers in the main clause (as well as in subordinate clauses). This goes for the Albanian negation *nuk* (Turano, 2000)¹⁹, Italian *non* (Zanuttini, 1997) and Hungarian *nem* (Kiss, 2002). This is illustrated below in the examples (12a-c) with present tense. The marker is also pre-verbal in all three languages with a non-thematic verb (13a-c). In Hungarian, the copula can be missing under certain circumstances, e.g., in the present indicative third person singular (13c). The noun or adjective then acts as lexical head of the predicate (Kiss, 2002:71-72). The negative marker appears before the noun or the adjective. In the examples (14a-c) we illustrate how sentence negation is placed with a compound verb form.²⁰

- 12a. ALBANIAN: Ginger *nuk flet*.
- 12b. ITALIAN: Ginger *non parla*.
- 12c. HUNGARIAN: Ginger *nem beszél*.
Ginger NEG speaks
'Ginger doesn't speak.'

- 13a. ALBANIAN: Hungarian *nuk është e vështirë*.
Hungarian NEG COP DEF complicated
- 13b. ITALIAN: L'ungherese *non è difficile*.
DEF Hungarian NEG COP complicated
'Hungarian isn't complicated.'
- 13c. HUNGARIAN: A magyar nyelv *nem nehéz*.
DEF Hungarian language NEG complicated

¹⁹ Albanian has four different negative elements. For the sake of simplicity sentence negation is here illustrated with *nuk*.

²⁰ Since there is no perfect tense in Hungarian, we illustrate this with the future auxiliary, which is always preceded by negation (not + future auxiliary + infinitive).

- 14a. ALBANIAN: Ginger nuk ka folur.
 14b. ITALIAN: Ginger non ha parlato.
 Ginger NEG AUX spoken
 ‘Ginger has not spoken.’
 14c. Hungarian: Ginger nem fog beszélni.
 Ginger NEG AUX speak
 ‘Ginger will not speak.’

3.4 The present study

3.4.1 Participants

The study involved two sets of participants. The first set (data collection A) consisted of five learners of Swedish as an L3, who were recorded during group lessons. The second set (data collection B) was made up of four learners of either Dutch or Swedish as L3, recorded individually. The learning situation was the same for all subjects: all learners were absolute beginners, and the learning was formal and took place during lessons outside the language community. Data were recorded during the lessons. Furthermore, only oral communication and training took place during the lessons, i.e., no reading or writing exercises were involved. The distribution of L1s, L2s and L3s is summarised in tables 2 and 3. Each participant is identified by the L2(s) they speak and a number; e.g., EN1 speaks English as an L2 and is the first participant in the group of learners who have English as an L2.

Table 2. The learners and their knowledge of V2 languages, data collection A

Learner	Sex	L1	L2	TL
EN1	F	Dutch +V2	English	Swedish +V2
EN2	F	Dutch +V2	English	Swedish +V2
EN3	F	Dutch +V2	English	Swedish +V2
D/G1	F	English	German/Dutch +V2	Swedish +V2
D/G2	F	Hungarian	Dutch +V2	Swedish +V2

Table 3. The learners and their knowledge of V2 languages, data collection B

Learner	Sex	L1	L2	TL
EN4	F	Swedish +V2	English	Dutch +V2
EN5	M	Swedish +V2	English	Dutch +V2
D/G3	M	Italian	German/Dutch +V2	Swedish + V2
D/G4	M	Albanian	German +V2	Dutch +V2

3.4.2 Data collection

Data collection A

All five participants in the first set (all female and aged between 21 and 23) were taking part in the same Swedish class simultaneously. The course was compulsory for a group

of students in linguistics at the Catholic University of Nijmegen (the Netherlands), and consisted of ten forty-five-minute lessons during the autumn of 2002. The lessons were video-taped and audio-recorded at the Max Planck Institute and transcribed in CHAT format (MacWhinney, 2000).²¹ The learners were recorded from the very beginning of the language course. It is important to note that all five learners received exactly the same input, i.e., correct structures produced by the teacher as well as correct and incorrect structures produced by the other learners in the group. Thus there was no risk that learners with a certain language background would receive special treatment. The teacher interacted with every pupil in a similar way and to a similar extent, so that all had equal chances to produce the structures that were being taught. The Swedish negative sentence was introduced during the first lesson and in the following lessons it was used by both teacher and learners, to a varying extent and in different contexts, depending on the topic of conversation. Because of this method of elicitation, the number of negative sentences varies from one recording to another.

After the course had finished, the subjects were asked about their knowledge of other foreign languages. Self-estimation may not be an objective method of identifying exact proficiency in a language, but it would not have been feasible to test proficiency level in all the background languages of the learners in a precise way. Three of the learners reported having high proficiency in English L2 and two of the learners reported high proficiency in German and/or Dutch. Thus, three of the learners – EN1, EN2 and EN3 - have the non-V2 language English as a strong L2 and a V2 language as L1 (Dutch). The other two learners in the D/G group have a V2 language (German or Dutch) as a strong L2, and a non-V2 language, either English or Hungarian, as L1.

As far as learners in the EN group are concerned, the word order pattern in their strongest L2 (English), differs from the L3 (Swedish), while the word order pattern of the L1 (Dutch), is the same, as far as the placement of negation in the main clause is concerned. As for the D/G group, sentence negation is placed after the thematic verb in their strongest L2 (Dutch/German), just like in Swedish, which is not the case in their L1s (English/Hungarian).

Data collection B

Data from the second set were collected during four ‘one-to-one’ lessons. The learners of Dutch were found via the University of Stockholm and thus recorded there. One learner of Swedish was found via the European Parliament and recorded in Brussels. In none of these four cases was the L3 spoken in the environment: the subject in Brussels was given a lesson in Swedish and the other three recorded in Stockholm were given a lesson in Dutch. The distribution of background languages in this set of participants is similar to set A: two of the learners have a V2 language as L1 and a non-V2 language as an L2 (EN4 and EN5), and the other two have a non-V2 language as an L1 and a V2 language as an L2 (D/G3 and D/G4).

Only one lesson per subject was given to this set of participants, but since the lessons consist of 45 minutes of one-to-one exposure and production, they supply sufficient data from each individual in the initial state. For this set of participants there was a more specific focus on eliciting negated sentences, i.e., more questions were asked to which the learner had to respond negatively.

²¹ We would like to thank Marianne Gullberg for the collaborative work with the data collection.

3.4.3 Hypotheses and predictions

The design of the study enables the following four hypotheses to be tested:

- a) There is no transfer from any previously known language (the non-transfer hypothesis)
- b) Properties of the L1 are transferred (the L1 transfer hypothesis)
- c) Properties of the L2 are transferred (the L2 transfer hypothesis)
- d) Transfer occurs according to the Cumulative Enhancement Model of Flynn et al. (2004)

a) The non-transfer hypothesis: according to this hypothesis, all learners proceed uniformly in development, independently of the background languages they know. It is therefore predicted that there will be no difference between the participants who learned English as an L2 or Dutch/German as an L2 in their treatment of word order in Swedish. They will all produce the same structures from the beginning and follow the same development, possibly the one predicted by Processability Theory, markedness theories or Universal Grammar. Pre-verbal negation is expected to appear before post-verbal negation in both groups, given the results of previous studies of the acquisition of negation in Swedish.

b) The L1 transfer hypothesis: If the L1 fully determines the acquisition of any non-native language (cf., Schwartz & Sprouse, 1996), differences will be found between the EN group and the D/G group. There will be no difficulty in placing negation post-verbally for the learners who have a V2 language as their L1, Dutch or Swedish, since the L1 and the target L3 have exactly the same word order as far as negation in main clauses is concerned. The same prediction would also be made by a weaker L1 transfer hypothesis like the DMTH (Håkansson et al. 2002). The speakers of an L1 with V2 will possibly show higher accuracy if the structure is processable, but all learners would pass through the same developmental stages (Pienemann et al., 2005).

c) The L2 transfer hypothesis: If the L2 supersedes the L1 as a source of transfer, L2 speakers of Dutch/German (the D/G group) will place negation post-verbally, as in Swedish, while the other group who have English as an L2 (the EN group) will distinguish between thematic and non-thematic verbs in relation to negation placement, since this is a property of English.

d) Transfer according to the Cumulative Enhancement Model: According to Flynn et al. (2004), all languages known (L1 and L2) may act as a source for transfer, but the L2 only supersedes the L1 when the structure ‘searched for’ is not present in the L1: ‘Language learning is cumulative, all languages known can potentially influence the development of subsequent learning’ (2004:5). If this is correct, no differences between the subjects in the present study are predicted, since all know a language with post-verbal negation, either L1 or L2. Put simply, this hypothesis is like a sum of hypotheses (b) and (c). In the Flynn et al. study, the possibility of L2 overriding L1 as a transfer source, as hypothesized in (c), is not, and cannot be, tested because the background

languages of the subjects do not rule each other out. Flynn et al. point out that ‘subsequent testing demands [a design where certain properties] ... match in the L1 and the L3, but not in the L2’ (2004:14) in order to fully determine the source for transfer. In her study, Leung (2002:13) also points out the need for an additional control group in order to pinpoint the source of transfer. Both Flynn et al. and Leung reach the conclusion that typology is a crucial factor in the choice of transfer source (in other words, the more typologically proximate the L2, or the L1, is to the L3, the more likely it is to be transferred). However, with the design of their studies, it is not possible to evaluate the L2 status factor per se, and thereby rule out other potential factors in polyglot behaviour, since they lack the relevant control group. With the design of our study this can however be tested.

3.5 Scoring

In quantifying cases of finite verb placement with respect to negation, only utterances containing at least a subject, verb and negation were counted. All other instances of negation in the data - partial sentences, anaphoric negation and constituent negation (i.e., negation of constituents other than verbs) – were discounted. Repetitions by the same individual were excluded. The remaining negative sentences were counted for instances of pre-verbal and post-verbal negation.

3.6 Results

Individual results from the first set of participants (A), are presented in tables 4 and 5.

Table 4. Negation placement, data collection A, recording 1, individual level

Rec 1		D/G1	D/G2	EN1	EN2	EN3
Pre-Verbal	+them	2	1	2	4	3
	-them	-	-	2	-	-
	total ± them	2	1	4	4	3
	total ± them group	3		11		
Post-Verbal	+them	3	3	1	-	-
	-them	4	2	-	-	2
	total ± them	7	5	1	-	2
	total ± them group	12		3		
Total		15		14		

+thematic verbs= lexical verbs.

-thematic verbs= be, have (aux/poss) and the modal can.

Table 5. Negation placement, data collection A, recording 2, individual level

Rec 2		D/G1	D/G2	EN1	EN2	EN3
Pre-Verbal	+them	1	-	2	-	1
	-them	-	-	1	-	1
	total \pm them	1	-	3	-	2
	total \pm them group	1		5		
Post-Verbal	+them	2	5	-	-	-
	-them	3	4	1	-	1
	total \pm them	5	9	1	-	1
	total \pm them group	14		2		
Total		15		7		

+thematic verbs= lexical verbs.

-thematic verbs= be, have (aux/poss) and the modal can.

In the first recording the D/G group produced 12 examples of post-verbal negation out of 15 negated sentences, whereas the EN group produced only 3/14. Although the number of structures is relatively small, the difference between the two groups is significant in a chi-square test ($p < 0.01$).²² For the D/G group, 6 out of the 12 instances of post-verbal negation involve non-thematic verbs, and the other 6 thematic verbs. In the previous studies of L2 Swedish by Hyltenstam (1977, 1978), post-verbal placement of negation with thematic verbs was considered to emerge late. Only the performance of the EN group, showing dominant pre-verbal placement of negation, is consistent with this observation. Typical examples of pre-verbal negation by the EN group are: *Nej, Anna inte är lärare* (no Anna NEG COP teacher 'No, Anna isn't a teacher') (EN1), *Jag inte* studerar engelska* (I NEG study English 'I don't study English') (EN2), *Jag inte går till universitetet* (I NEG walk to university-the 'I don't walk to the university') (EN3).

In the second recording, the D/G group almost exclusively places negation post-verbally (14/15 cases), whereas the EN group produces 5 pre-verbal and 2 post-verbal negations. Further, post-verbal negation occurs only with non-thematic verbs for the EN group.²³ The difference between the two groups as to post-verbal negation is still significant ($p < 0.01$). In later recordings the EN group gets closer to target-like placement, but remains different from the D/G group. Production over the 9 samples for each group is shown in tables 6 and 7.

²² Or, in the case of small expected frequencies, Fisher's Exact Test (Montgomery, 1991). All analyses were carried out using the SAS system (SAS Institute Inc).

²³ An anonymous reviewer suggested that it might be the case that the EN-group, albeit being advanced speakers of English, treat 'don't as a chunk and as an equivalent for the negation marker in the target language'. This is an interesting possibility, but is irrelevant since the negative element precedes only thematic verbs in English, and since the learners of the EN-group mainly separate thematic and non-thematic verbs.

Table 6. Distributional analysis of processing procedures, levels 2-4, EN-group

Structure	PT Level	Rec. I	Rec. II	Rec. III	Rec. IV	Rec. V	Rec. VI	Rec. VII	Rec. VIII	Rec. IX	Rec. X
Thematic V neg	4	1	-	-	-	2	4	1	4	-	-
Non-thematic V neg	2	2	2	2	-	1	3	4	4	9	-
Neg thematic V	2	9	3	-	2	2	1	2	2	-	-
Neg non-thematic V	2	2	2	3	-	1	1	-	1	1	-
TOTAL Neg. Sentences		14	7	5	2	6	9	7	11	10	-

Table 7. Distributional analysis of processing procedures, levels 2-4, D/G-group

Structure	PT Level	Rec. I	Rec. II	Rec. III	Rec. IV	Rec. V	Rec. VI	Rec. VII	Rec. VIII	Rec. IX	Rec. X
Thematic V neg	4	6	7	-	2	4	1	1	2	2	5
Non-thematic V neg	2	6	7	2	-	3	2	-	-	1	-
Neg thematic V	2	2	1	-	-	-	-	-	-	-	-
Neg non-thematic V	2	1	-	-	-	-	-	-	-	-	-
TOTAL Neg. Sentences		15	15	2	2	7	3	1	2	3	5

These tables indicate in column 2 the level in the Processability Theory at which each type of negation is expected to emerge (from Pienemann & Håkansson 1999). The fact that the number of negated sentences varies from recording to recording is due to the type of data collection procedure. As is clear from table 6, the EN group produces negation patterns typically consistent with level 2 during the first four recordings. In contrast, table 7 shows that the D/G group produces negation patterns consistent with level 4 of PT from the first recording.

Data from set B complete the picture. Since data were collected from informants in group B individually, the absolute numbers of utterances involving negation are higher than those for group A. These are presented in table 8.

Table 8. Negation placement, data collection B, individual level

		D/G3	D/G4	EN4	EN5
Pre-Verbal	+thematic	-	-	16	12
	-thematic	-	-	-	-
	total \pm thematic	-	-	16	12
	total \pm thematic group	-		28	
Post-Verbal	+thematic	21	15	1	4
	-thematic	15	20	5	7
	total \pm thematic	36	35	6	11
	total \pm thematic group	71		17	
Total		71		45	

+thematic verbs= lexical verbs or full verbs.

-thematic verbs= be, have (aux/poss) and the modal can.

As table 8 shows, D/G3 and D/G4 only produces post-verbal negation with both thematic and non-thematic verbs. EN4 and EN5 behave in a different manner, producing altogether 28 utterances with pre-verbal negation, and 17 with post-verbal negation. The difference between the two groups is highly significant ($p < 0.001$). While both non-thematic and thematic verbs appear with post-verbal negation in the D/G group, the EN group mostly uses post-verbal negation with non-thematic verbs.

3.7 Discussion

In section (3.4.3) four hypotheses were presented that are repeated:

- a) There is no transfer from any previously known language (the non-transfer hypothesis)
- b) Properties of the L1 are transferred (the L1 transfer hypothesis)
- c) Properties of the L2 are transferred (the L2 transfer hypothesis)
- d) Transfer occurs according to the Cumulative Enhancement Model of Flynn et al. (2004)

This section discusses the extent to which the data collected support each.

According to (a), all non-native language learners proceed uniformly and independently of the existing languages they speak. If this hypothesis were correct, there would be no difference between the two groups EN and D/G in the placement of negation in L3 Swedish. As we have seen, results indicate that there is a statistically significant difference. If hypothesis (b) were correct, an L1-derived difference between the two groups should be found. The EN group, who have Dutch or Swedish as the L1, should outperform the D/G group when it comes to placing negation post-verbally. The same would hold for the DMTH of Håkansson et al., which holds that

the V2 property of the L1 would facilitate acquisition of V2 in Swedish once the structure is processable. However, results of the present study show that the D/G group, who do not have a V2 L1, outperform the EN group in producing post-verbal negation. If hypothesis (c) is correct, the D/G group would initially produce target-like negated structures, whereas the EN group would produce pre-verbal negation, especially with non-thematic verbs. This is exactly what was found. Finally, hypothesis (d) predicts the same outcome as hypothesis (a); i.e., there should be no difference between the groups. The positive influence of all previous languages (L1, L2(s)) would facilitate the learning task for both groups, hence yielding overall target-like structures from the outset. This was not confirmed by the results.

Therefore, only hypothesis (c), the one that might be termed the ‘Germanic illness hypothesis’ and that is dismissed by Håkansson et al. (2002: 269), see section (3.2.3), is corroborated by our data, although English L2 does not appear to be transferred completely. Learners with English L2 should have (relatively) low incidence of post-verbal negation with thematic verbs, which they have. But, the results from our EN group are not as clear cut as those of the D/G group, since the English system is not fully transferred into the L3, i.e., there is no complete distinction of pre- and post-verbal placement of negation according to verb type. Nevertheless, there is a tendency in the EN group to favour pre-verbal negation with thematic verbs and post-verbal negation with non-thematic verbs. A possible explanation for this somewhat blurred picture, compared to the D/G group, might be that the English negation system is not categorical, unlike in the other Germanic secondary languages, and is therefore not as susceptible to transfer. It is an obvious fact, however, that none of the learners in the EN group systematically transfers the placement of negation of his or her L1, although the L1 shares the V2 rule with the L3 (cf., Håkansson et al. 2002).

The results from the EN group, with dominating pre-verbal negation, could of course also be interpreted in terms of the developmental sequence for negation described in (3.3.1), with pre-verbal negation the default placement in early ILGs. However, such an interpretation cannot account for the results of the D/G group. A more plausible alternative is that the L2 is transferred in both groups.

3.7.1 Conclusions

In sum, our data support the hypothesis that the L2 factor is stronger than the typology factor in L3 acquisition: the typological proximity between L1 and L3 is not enough for the EN group to resort to L1 transfer – instead the results clearly point to positive transfer of the placement of negation/V2 from L2 to L3 in the D/G group. The data thereby contradict PT and the DMTH, as suggested by Håkansson et al. (2002). Typological proximity thus seems to favour transfer from L2 to L3, but not from L1 to L3. There is however nothing in our data that would falsify an L1 transfer hypothesis in the case of true L2 acquisition. Our data concern only L3 acquisition. The results from the present study shed new light on the issue of typology: in L3 acquisition, the L2 acts like a filter, making the L1 inaccessible.

CHAPTER 4.

OBJECT PRONOUNS IN GERMAN L3 SYNTAX: EVIDENCE FOR THE L2 STATUS FACTOR

Falk, Y. and Bardel, C. (in press) *Second Language Research*

4.1 Introduction

Several recent studies on L3 syntax have forcefully shown that L2 is one source of transfer in L3 acquisition (Flynn, Vinnitskaya and Foley, 2004; Leung, 2005a among others), and some studies even indicate a qualitative difference between the acquisition of a true L2 and the subsequent acquisition of an L3, in that L2 seems to take on a stronger role than L1 in L3 syntax in the initial state (Bardel & Falk, 2007; Rothman & Cabrelli Amaro 2010). In this article we further discuss this L2 transfer hypothesis, as presented in Bardel and Falk (2007), but in learners at a higher level of proficiency. In Bardel and Falk 2007 the L2 transfer hypothesis was corroborated and explained by the L2 status factor, which had already been suggested by Williams and Hammarberg (2009 [1998]). Since the learners in the present study are at an intermediate level it can be assumed that they have not mastered the TL structure completely. If the L2 status factor still plays a role at this level of proficiency, there is a possibility that L2 will interfere with the TL. Data were obtained from 44 learners of German, who undertook a grammaticality judgement and correction test (GJCT) of 144 items, out of which 60 items contained object pronouns. The learners constitute two groups: One group has English as L1 and French as L2 and the other group has French as L1 and English as L2, in other words, they represent mirror images of one another in this regard, so it is feasible to pinpoint the source of transfer.²⁴ The focus for this study is placement of object pronouns in both the main and subordinate clauses, as illustrated in (1) and (2).

1. a. GERMAN: Ich sehe *ihn*.
I see him
b. FRENCH: Je *le* vois.
I him see
c. ENGLISH: I see *him*.

2. a. GERMAN: Du weisst dass ich *ihn* sehe.
you know that I him see
b. FRENCH: Tu sais que je *le* vois.
you know that I him see
c. ENGLISH: You know that I see *him*.

Whereas the German word order in main clauses (cf., 1 a) corresponds to the English pattern (cf., 1 c), the word order in German subordinate clauses (cf., 2 a) corresponds to the French pattern (cf., 2 b). By testing these particular structures, we will examine the participants' word order with the aim of investigating L2 transfer into L3 syntax.

²⁴ In this study, we will use the term L2 as an umbrella term for all languages acquired after the L1 and before the TL, which will be labelled L3.

4.2 Determining factors for the transfer source in L3 acquisition

At present time, transfer of syntax is an area under close examination in L3 acquisition research. For instance, Flynn et al. (2004), with the Cumulative Enhancement Model (CEM), and Leung (2005a) suggest that both L1 and L2 have an impact on the L3 syntax. CEM claims that both L1 and L2 may act as a source for transfer, but the L2 only supersedes the L1 when the TL structure is not present in the L1. This is however not the case in Na Ranong and Leung (2009), where only L1 transfer is found. In this study we stress the importance of the L2 status factor, that is, we assume that secondary languages differ cognitively from first languages and will therefore be preferred as transfer source in case of L3 acquisition. The L2 status factor hypothesis implies that the L2 can supersede the L1 as a source of transfer, because of a higher degree of cognitive similarity between L2 and L3, than between L1 and L3. Bardel and Falk (2007) showed that the L2 status factor determined transfer in L3 acquisition of Swedish and Dutch at the initial state. In a study on the placement of sentence negation, L3 data from two groups of learners with different L1s and L2s were compared; the structure under study, post-verbal negation, was present in L3s and in either the participants' L1 or L2. The data clearly demonstrated that syntactic structures were more easily transferred from L2 than from L1, even when L1 was typologically closer than L2 to the TL/L3 (both in the sense of language relatedness and regarding structural similarity, and even when L2 led to negative transfer), as the two groups behaved significantly different as to the placement of negation.²⁵

Rothman and Cabrelli Amaro (2010) compare the acquisition of the Null-Subject Parameter (NSP) in L2 and L3 learners of either French or Italian. The data show that properties of the NSP are not transferred from L1 English, but from L2 Spanish into L3 French or Italian. Also in this study, transfer is shown to be either positive or negative, depending on the correspondence between L2 and L3, as regards the NSP. These results argue against the L1 transfer hypothesis in L3 acquisition, and corroborate the L2 status factor hypothesis (cf., Bardel and Falk 2007), according to which L2 may hinder the occurrence of L1 transfer even if it would lead to target-like L3 production. Rothman and Cabrelli Amaro do not, however, dismiss the CEM. Instead they suggest a modified version where (psycho)typology (i.e., a perception of the Romance languages being similar at a global level, according to the authors) may be a factor influencing the intervening of L1 or L2 as a transfer source. In their study the different roles of (psycho)typology and the L2 status factor cannot be separated completely, since L2 and L3 are both non-native languages and relatively closely related, being Romance languages.

Taking these new findings into consideration, there is a need to discuss the reasons for the observed preference for transfer of L2 in L3 acquisition in some studies. As seen above, there are recent studies that show that there are cases where L3 learners do

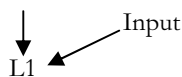
²⁵ The notions of positive vs. negative transfer have a long-standing presence in SLA literature. As explained by Jarvis and Pavlenko (2008: 182), “positive transfer occurs when assumed similarities are compatible with objective similarities, whereas negative transfer occurs when assumed similarities conflict with objective differences”.

not exhibit transfer from L1 even in cases where this would lead to correct L3 structures, but from L2. We see some possible explanations for the L2 status factor being able to outrank L1 transfer. There are several cognitive differences between the acquisition of an L1, an L2 and an L3.²⁶ The following figure is inspired by Hufeisen's (1998), and points at the increased number of factors that come into play in L3 acquisition. This schema was originally suggested as an explanation of phenomena in lexical transfer in L3, but we find it suitable as a model for L3 independently of linguistic level (see also Hufeisen & Marx 2007).

Fig. 1, L1, L2 and L3 acquisition

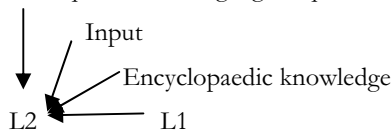
L1 acquisition

Prerequisites for language acquisition



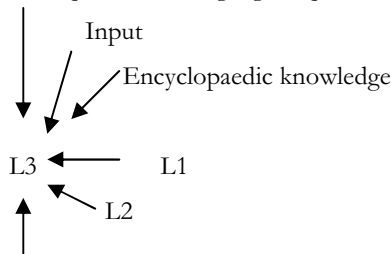
L2 acquisition

Prerequisites for language acquisition



L3 acquisition

Prerequisites for language acquisition



Experiences and strategies acquired during L2 acquisition

Inspired by Hufeisen's model (1998: 171-172).

²⁶ This study regards participants with a single L1, an L2 learned in a formal setting at school after the Critical Period, and an L3 learned later, also in a formal setting. L2 acquisition in early childhood falls beyond the scope of this framework.

It is fairly uncontroversial to assume that in L1 acquisition input interacts with innate language acquisition prerequisites, as suggested by Chomsky (1965) with the concept of LAD, and many after him. In the acquisition of a true L2, the first encounter with a non-native language, there are two important additional factors, encyclopaedic knowledge and knowledge of L1.²⁷ Eventually, when it comes to L3 acquisition, the learner has already come into contact with (at least) one non-native language. It can therefore be assumed that this learner is more aware about the language learning process, and has acquired metalinguistic awareness and learning strategies as to non-native/foreign language learning (e.g., Wood Bowden, Sanz & Stafford, 2005: 124-126).

In cases where the L2 and L3 are both foreign languages learned in formal settings the learning situation might be a further rationale for the L3 learner to classify her languages according to native language vs. non-native languages (Heine, 2001; Williams & Hammarberg, 2009 [1998]). As pointed out already by Meisel (1983: 18), “previously learned second languages interfere with the learning of another foreign language” especially in the classroom setting. In a brief report on early studies of both lexical and syntactic transfer from L2 to L3, Meisel (1983: 18) claims that “it is not at all obvious that the conditions on the application of transfer strategies from L1 or a foreign language are identical”. He also advances the idea that there might be “a difference in the neuropsychological basis for storing and processing first and second languages” and that if and when such a difference can be shown, the distinction “first language” vs. “other than first language” must be taken as crucial (p. 18).²⁸

The phenomenon of L2 activation in L3 use was labelled the *L2 status factor* by Williams and Hammarberg (2009 [1998]), referring to the learner’s inclination to activate a previously acquired second language when producing in an L3. Additional factors that have been discussed in L3 studies as determinants of cross-linguistic influences at a lexical level are *recency* and *proficiency* (Williams & Hammarberg, 2009 [1998]). *Recency* refers to the degree of recent contact with a certain background language, which Williams and Hammarberg found to be an important factor in their case study. *Proficiency* includes level of proficiency in the target language as well as in the background languages (Bardel & Lindqvist, 2007; Dewaele, 2001). Regarding the

²⁷ We assume that Universal Grammar (UG) is available to some extent in non-native language acquisition (cf., discussions in e.g., Vainikka & Young-Scholten (1994, 1996), Eubank (1993/94, 1994), Hawkins & Chan (1997), Hawkins & Hattori (2006), Hawkins et al., (2006)).

²⁸ In fact, there is an on-going debate on the status of native vs. non-native language acquisition also in the field of neurolinguistics: while some argue that there is no difference as to the location of languages in the bilingual’s brain others claim that native and non-native languages have different locations. The latter would support our hypothesis about the different status of L1 vs. L2/L3. For instance, Kim et al. (1997: 171) showed that “second languages acquired in adulthood (‘late’ bilingual subjects) are spatially separated from native languages” and Dehaene et al. (1997) arrived at similar results when comparing learners of English and French as L1 and/or L2. See also more recent studies, e.g., Pillai et al. (2003) who found divergence in activation topography between L1 and L2, and Ullman (e.g., 2005) who suggests that L1 and L2 have different status based on the distinction between declarative and procedural memory.

proficiency factor, while many studies have shown that in the lexical domain transfer may occur from a background language in which the learner has a low level of proficiency, it is reasonable to assume that when it comes to syntax the learner must have reached a certain level of development in the L2 in order to transfer complex structures from L2 (cf., Bardel & Falk, 2007; Rothman & Cabrelli Amaro 2010). Two additional factors that are currently under investigation in L3 research are typology and psychotypology: *Typology* (in the sense of Croft, 1990), on the one hand, refers to *ad hoc* similarity between linguistic features, for example the verb-final property that applies to the non related languages German and Turkish, as well as to the V2 property that applies to the closely related languages Swedish, German and Dutch. *Psychotypology*, on the other hand, was coined as a term by Kellerman (1983) to denote the learner's apprehension of linguistic similarities among languages. Psychotypology is generated in the learner's mind, and does not necessarily have anything to do with the relatedness of the languages per se. Psychotypology can be grounded on actual typology, more sporadic and/or accidental formal similarity, or on the fact that the languages are genetically related. For instance, the learner may perceive that Swedish and German are relatively similar at one or more linguistic levels, or have metalinguistic knowledge of the fact that they are both Germanic languages. Turning back to the *L2 status factor*, we argue that this factor is a natural outcome of several sociolinguistic and cognitive differences between L1 and (adult) L2 acquisition, as summarized below:

- age of onset,
- outcome,
- learning situation: *natural*/informal vs. *classroom* (cf., footnote 3),
- degree of metalinguistic knowledge,
- learning strategies present in L2 but not in L1,
- degree of awareness of the language learning process.

While these differences can be claimed to hold for L1 vs. L2 acquisition, all of them become irrelevant when comparing L2 and L3 acquisition. As for age of onset, outcome, learning situation and metalinguistic knowledge and awareness, the most important difference is between L1 and L2, and the subsequent characteristics develop during L2 acquisition. The similarities between L2 and L3 acquisition, as suggested here, can explain why transfer from L1 into L3 can be blocked even in cases where L1 and L3 are fairly closely related and there is a one-to-one typological relation between structures in L1 and L3 (cf., Bardel & Falk, 2007). Because of these similarities, the learner classifies L1 and non-native languages differently and tends to co-activate non-native languages.

4.3 Object placement in the L1/L2/L3 of this study

This study comprises two Germanic languages (German and English) and one Romance (French). Although two of them are part of the same branch of the Indo-European languages and one is not, there is no extreme similarity between any two of the languages involved. All three languages display both similarities and differences concerning lexicon as well as grammar. In this section we will give a brief outline of the pronominal systems of these languages. In the respect of pronouns, Germanic and

Romance languages differ fundamentally from a morphological and a syntactical point of view (e.g., Cardinaletti, 1999). However, the placement of the pronouns with respect to the verb in main and subordinate clause displays a different pattern in all three languages.

4.3.1 German

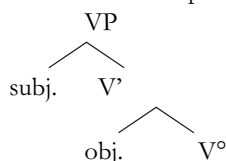
One of the most conspicuous features of German is the word order asymmetry between main and subordinate clauses, with respect to the placement of the finite verb, as illustrated in (3) and (4).

3. Ich weiß dass Ginger *es* frisst.
I know that Ginger it eats

4. Ginger frisst *es*.
Ginger eats it

In a subordinate clause (3), the finite verb is in a final position, thus it does not move out from its base position, (the OV property); and, in a main clause (4) the verb is in a second position (the V2 property). Following the mainstream literature (Grewendorf, 1988; Haider, 1993; Zifonun, Hoffmann & Strecker, 1997), we will assume that the basic word order in German is SOV; the structure of the VP is symmetric, that is, it always has the same basic structure, whether in a subordinate or a main clause²⁹. The underlying structure in a German VP is thus the following:

Fig. 2, the German verb phrase



The verb is generated to the right of the object and the subject is generated as the specifier of the V-bar, which is projected from the verb. In other words, in German we assume that the verb is base-generated to the right, a position in which it stays in subordinate clauses (3), whereas it proceeds higher up in the structure in a declarative main clause (4).

In the main clause, the V2 property forces the verb to be in the second position, giving rise to subject-verb inversion if the clause is introduced by another constituent than the verb, (cf., 5-7).

²⁹ This is however not indisputable, there is also *the universal basic structure* (cf., Zwart, 1993; Kayne, 1994 among others) according to which the basic word order is SVO in all languages and *the asymmetry hypotheses* which supposes that a main clause only projects to IP whereas a subordinate clause projects to CP (see for instance Stechow & Sternefeld, 1988; Travis, 1994).

5. Ginger frisst *es* jetzt.
Ginger eats it now.
6. *Jetzt Ginger frisst *es*.
Now Ginger eats it.
7. Nur wenn er Hunger hat, frisst er *es*.
Only when he hunger has, eats he it.

The finite verb is attracted to C° , due to the feature [finite] in the CP being strong and overtly attracting the verb in the main clause. As mentioned above, the verb remains in the VP in a subordinate clause. It has been suggested that the finite verb and the conjunction are in complementary distribution in V2 languages (cf., den Besten & Edmondson, 1983), this is to say that the C° either hosts a verb with the feature [+finite] or a complementizer (e.g., *dass*), which inhibits the verb from landing there. The two basic syntactic properties of German (OV and V2) have consequences for the positioning of other constituents of the clause.

Now, let us turn to the placement of (reflexive and object) pronouns – which are the structures investigated in this study. A reflexive pronoun is a pronoun like the following:

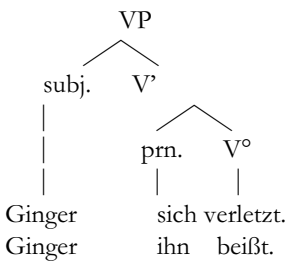
8. Ginger_i verletzt *sich*_i (oft im Wald).
Ginger hurts himself (often in.the forest)

An object pronoun is a substitute for a nominal constituent; we will briefly discuss structures with both direct (9) and indirect (10) objects.

9. Ginger beißt *ihn*.
Ginger bites him.
10. Ich gebe *ihm* ein Schweinöhrchen.
I give him a pig.ear

The standard (simplified) underlying structure for constructions with either a reflexive or an object pronoun is the following:

Fig. 3, the internal order verb and object in the German VP.



In both the reflexive construction and the structure with the (direct) object pronoun the pronouns are generated as the internal argument of the verb. In unmarked main clauses (like these) the pronouns are always placed post-

verbally. In these examples, the pronouns are adjacent to the verbs, but this is not always the case, there might be an intervening constituent, for instance the subject, as in (11).

11. Im Wald verletzt Ginger *sich*.
in.the forest hurts Ginger himself

In a subordinate clause the pattern is the reverse of that found in main clauses; due to the verb final property of German the pronoun always precedes the verb, which remains in situ. Consider the following examples:

12. Ich sehe dass Ginger *sich* verletzt
I see that Ginger himself hurts

13. Ich sehe dass er *ihn* beißt.
I see that he him bites

The relative order of the other constituents can vary, and just as in main clauses the pronoun does not have to be adjacent to the verb. However, the V2 property forces pronouns to follow the verb in main clauses, and in subordinate clauses the pronouns are placed pre-verbally due to the OV property.

4.3.2 English

English does not share the basic properties SOV and V2 with German. The verb does not raise to a higher position than I in order to pick up its inflection (Haegeman & Guéron, 1999; Pollock, 1989; Vikner, 1995). The basic word order is SVO, hence English is a head-initial language, which is illustrated in the following examples of direct object placement, which also illustrate how the word order is the same whether the object is a full DP or a pronoun.

All kinds of object pronouns are placed after the verb: direct, indirect and reflexive.

14. Ginger eats *it*.

15. I give *him* a pig ear.

16. Ginger_i hurts *himself*_i.

Further, the same word order is found whether the clause is a main or a subordinate clause:

17. I know that Ginger eats *it*.

18. I know that I gave *him* a pig ear.

19. I know that Ginger_i hurts *himself*_i.

Summing up, English is a robust VO language, hence it does not have object shift and pronouns do not behave differently when compared with full DPs (as is the case in French, see below); furthermore, there is no distinction between direct and indirect pronouns as to placement with respect to the verb (cf., examples 14-19 above).

4.3.3 French

Traditionally, the French pronominal system is said to have two series of personal pronouns, strong (for direct and indirect objects) and clitic (for direct, indirect and reflexive objects) (Schmitz & Müller, 2008: 20). Clitic-placement with respect to the finite verb is the ‘default’ behavior of French object pronouns. The clitic object pronoun precedes the finite verb. According to Kayne (1991), clitic pronouns are left-adjoined to functional heads, and more specifically to AgrS, according to Belletti (1990). All kinds of clitic object pronouns are placed before the verb: direct, indirect and reflexive.

20. Ginger *la* mange.
Ginger it eats

21. Je *lui* donne une oreille de cochon.
I him give a pig ear

22. Ginger_i *se*_i fait mal.
Ginger himself hurts

Further, the same word order is found whether the clause is a main or a subordinate clause:

23. Je sais que Ginger *la* mange.
I know that Ginger it eats

24. Tu sais que je *lui* donne une oreille de cochon.
You know that I him give a pig ear

25. Je sais que Ginger_i *se*_i fait mal.
I know that Ginger himself hurts.

Clitic, and thereby, pre-verbal placement of pronouns is applied in most sentence types.³⁰

³⁰ There are, however, some cases, when clitic-placement cannot be applied, and when strong pronouns are used: a) Clitic-placement is blocked by the PP-Island Constraint: in French, no item can be extracted from a PP (Jones, 1996: 247). Thus a pronoun does not move from the PP to pre-verbal position. b) Clitic-placement is also blocked when a pronoun is conjoined with another DP. c) Clitic pronouns cannot be conjoined with each other. Furthermore, clitic pronouns are attached to the left of the thematic verb

Summing up the differences and similarities between the two background languages (English vs. French) and the TL (German) of this study, the German word order in main clauses (cf., 1 a) corresponds to the English pattern, and the word order in German subordinate clauses (cf., 2 a) corresponds to the French pattern.

Table 1, Summary of the relative order between verb and object

	English	German	French
Clause type			
Main clause	[Verb Pronoun]	[Verb Pronoun]	[Pronoun Verb]
Sub clause	[Verb Pronoun]	[Pronoun Verb]	[Pronoun Verb]

4.4 Participants

The data used in this study were gathered during 2002-2003 at three universities: Université de Liège and Université de Mons-Hainaut (Belgium) and Trinity College in Dublin (Ireland). We conducted an oral interview with each participant, the aim of which was twofold: first to gather background information about each one's language profile and second to assess their proficiency in German. The participants were all in their first or second year of German as a foreign language, and their oral production and interaction were rated at level B1 according to the Common European Framework of Reference (Council of Europe, 2001) by a trained CEFR-rater. The B1 level is an intermediate level of proficiency. For a specification of the skills at this level, see Council of Europe 2001). Further, they had all studied either French or English L2 for four to six years. All the participants had yet another L2, namely for the French L2 group Irish, and for the English L2 group Flemish. Both Irish and Flemish are compulsory school languages in the environments of interest, but all of the students reported no use of these languages and not having studied them recently.

The 44 participants are organized into two groups: learners with French as L1 and English as L2 (English L2) and learners with English as L1 and French as L2 (French L2):

Table 2, Participants

English L2	French L2
n=22	n= 22

The tests were carried out during regular classes at the universities, hence, since the test was compulsory for all students, there should be no bias due to self-selection of extra-motivated participants.

(cf., Jones, 1996: 81). From this follows that clitic pronouns do not precede the auxiliary in complex sentences (Jones, 1996: 248). None of these structures are included in the test used in this study.

4.5 The task

The task was a grammaticality judgement and correction task (GJCT). By using GJCTs we aim at tapping the learners' actual mental representation of the developing target language grammar. Grammaticality judgements (GJs) in research on the acquisition of syntax are handy tools with which we can construct any structures that we are interested in (e.g., a parameter setting copied from another language) and force the informant to respond to the sentence. As Hawkins (2001: 24) observes, GJ tests “provide information about learner knowledge in a controlled way (the speaker cannot avoid grammatical properties) [...] and they eliminate much potential performance interference because the subject does not have to produce the sentences, merely assess them”.

However, the validity and the reliability of GJs have been debated (cf., Gass, 1994; Munnich, Flynn & Martohardjono, 1994; Schütze, 1996; Mandell, 1999). Some disadvantages of the method in L2 research have also been pointed out by Hawkins (2001: 23f): the learner may respond haphazardly, there could be a response bias (only positive vs. negative judgements) or s/he may be judging something else in the sentence than what was aimed at. Besides, the learner's concentration is likely to be affected over time, which could lead to lower degree of commitment on the learner's side towards the end of a long test. Being aware of these drawbacks, we asked the participants to correct the sentence in case of rejection. Further, the test items appeared in an order which was unique and randomized for each participant.

The data used in this study stem from 60 sentences involving object pronouns. As already mentioned these 60 sentences are part of a larger data collection, all in all covering 144 sentences testing different aspects of syntax. The 60 sentences tested four different structures which consisted of a minimum of the constituents S/V/O (where O is always an object pronoun), and they will be referred to as:

G:en (a grammatical sentence with a word order that corresponds to the English)

G:fr (a grammatical sentence with a word order that corresponds to the French)

U:en (an ungrammatical sentence with a word order that corresponds to the English)

U:fr (an ungrammatical sentence with a word order that corresponds to the French)

All types have five tokens, as exemplified with G:en below.

G:en, a grammatical main clause:

- (i) *ich sehe ihn*;
S V ODir
- (ii) *ich sehe ihn oft*;
S V ODir Adv
- (iii) *ich frühstücke und kämme mich jeden Morgen*;
S V & V ORefl Adv
- (iv) *ich schreibe ihm einen Brief*;
S V O ODir + OIndir
- (v) *ich schreibe ihm oft*.
S V OIndir Adv

G:fr, a grammatical subordinate clause (e.g., ...*dass ich ihn sehe*, and variants, as in G:en, i-v)

U:en, an ungrammatical main clause (e.g., **ich ihn sehe* etc.)

U:fr, an ungrammatical subordinate clause (e.g., *...*dass ich sehe ihn* etc.)

In other words, there are 30 grammatical structures (as in G:en and G:fr together) and 30 ungrammatical structures (as in U:en and U:fr together). Further, the pronoun objects that were present in the test sentences were of the following kinds: (26) indirect, (27) direct and (28) reflexive pronouns.

26. Ich schreibe *ihm* einen Brief.

I write him a letter

27. Ich sehe *ihn* oft.

I see him often

28. Ich kämme *mich* jeden Morgen.

I comb myself every morning

Vocabulary was controlled for and should not have caused any problems for the participants; lexical words were checked against the first two tests in *Einstufungstests für Anfänger- und Fortgeschrittenenkurse: Deutsch als Fremdsprache* (1994). If there was more than one object in a sentence the second one was a full DP (cf., 26). Both main and subordinate clauses were used, and very often there was an adjoined adverb in order to make the sentence a little bit longer and increase the difficulty up to an appropriate level.³¹ The four types of sentences in the task can be summarized as follows in table (3):

³¹ The test was also distributed to eight native speakers of German. All natives responded as expected, except for one who rejected and corrected one grammatical item and also accepted one ungrammatical item.

Table 3, Sentence types

N	Type	German	English	French
15	G:en	Ich sehe ihn	I see him	
15	G:fr	...dass ich ihn sehe		...que je le vois
15	U:fr	*Ich ihn sehe		Je le vois
15	U:en	*...dass ich sehe ihn	...that I see him	

4.6 Scoring

The participants were asked to judge, under time pressure, whether sentences were grammatical or ungrammatical, and if ungrammatical to correct them. The answers were assigned the scores ‘hit’ or ‘miss’. ‘Hit’ was given if the participant judged a grammatical sentence as grammatical or an ungrammatical as ungrammatical and also fixed it in a correct way. ‘Miss’ was given in the following cases: a) if the participant judged a grammatical sentence as ungrammatical and either made an incorrect correction or no correction, b) if the participant judged an ungrammatical sentence as grammatical. There were also a number of uninterpretable data as well as a number of skipped items.³² The scoring was done by one rater, and 50% of the data were scored by another rater. No deviances were found between the two ratings.

We decided to set a hypothetical level for acquisition according to quantitative criteria, in line with other acquisition studies. In earlier research such a level has been set at rates mainly between 60 and 90 per cent (see for instance Eubank, Bischof, Huffstunler, Leek & West 1997: 181; or Pallotti, 2007 for an overview). In this study we have chosen to set the level of acquisition at an accuracy rate of 75%, that is, we understand a structure to be acquired when it is correctly judged, and correctly fixed in case of ungrammatical structures, in 75% of the cases, following Neeleman and Weerman who “assume that a speaker has knowledge of a particular construction if he or she reaches a score of 75 %” (1997:155).

4.7 Other L2s

As already mentioned, the participants in this study have studied more than one foreign language before coming into contact with the TL German. In the English L2 group, all the participants have studied Flemish, since it was compulsory in secondary school. The recency as well as the proficiency of this L2 is low. However, if transfer from Flemish occurred in the structures we are interested in here, this would lead to correct placement of objects, since the word order is the same in German and Flemish in this regard. As for the French L2 group, the learning situation is the similar when it comes to the study of Irish. The object placement in Irish is post-verbal, which is the same as in English, and if it transferred into L3, it would cause the same effect as transfer from these participants’ L1 (English). We will return to this in the discussion of the results.

³² In the category of uninterpretable data, we include incomplete responses, e.g., the judging of an ungrammatical sentence as ungrammatical, but with no correction.

4.8 Hypothesis for this study

First of all, we anticipate finding deviances in the learners' results from the native speakers' control group, since the learners are at an intermediate level, and thus not expected to behave in a native-like manner. If such deviances are found, we hypothesize that these can be related to the L2 status factor (Williams & Hammarberg, 2009 [1998]; Bardel & Falk, 2007), because we expect the participants to transfer structures from their L2 into German L3 to some degree. As already mentioned, the L2 status factor hypothesis in syntax was corroborated in Bardel and Falk on negation in oral production in a longitudinal study starting at the initial state, as well as in Rothman and Cabrelli Amaro's study (2010) on the null subject parameter. Specifically, our expectations are the following:

In sentence type G(en), the grammatical main clause, we expect the English L2 group to accept the items to a higher degree than the French L2 group. This means that for correct main clauses (e.g., *ich sehe ihn*), the English L2 group will have a higher number of hits than the French L2 group. We ground this expectation on the hypothesis of positive transfer from English L2 and negative transfer from French L2.

In sentence type U(fr), the ungrammatical main clause, we expect the English L2 group to reject and correct them to a higher degree than the French L2 group. This means that for incorrect main clauses (e.g., **ich ihn sehe*), the English L2 group will have a higher number of hits than the French L2 group. Again, we ground this expectation on the hypothesis of positive transfer from English L2 and negative transfer from French L2.

In sentence type G(fr), the grammatical subordinate clause, we expect the French L2 group to accept the items to a higher degree than the English L2 group. This means that for correct subordinate clauses (e.g., *...dass ich ihn sehe*), the French L2 group will have a higher number of hits than the English L2 group. In this case, we ground the expectation on the hypothesis of positive transfer from French L2 and negative transfer from English L2.

Finally, for sentence type U(en), the ungrammatical subordinate clause, we expect the French L2 group to reject and correct the items to a higher degree than the English L2 group. This means that for incorrect subordinate clauses (e.g., **...dass ich sehe ihn*), the French L2 group will have a higher number of hits than the English L2 group. As in c., we ground this expectation on the hypothesis of positive transfer from French L2 and negative transfer from English L2.

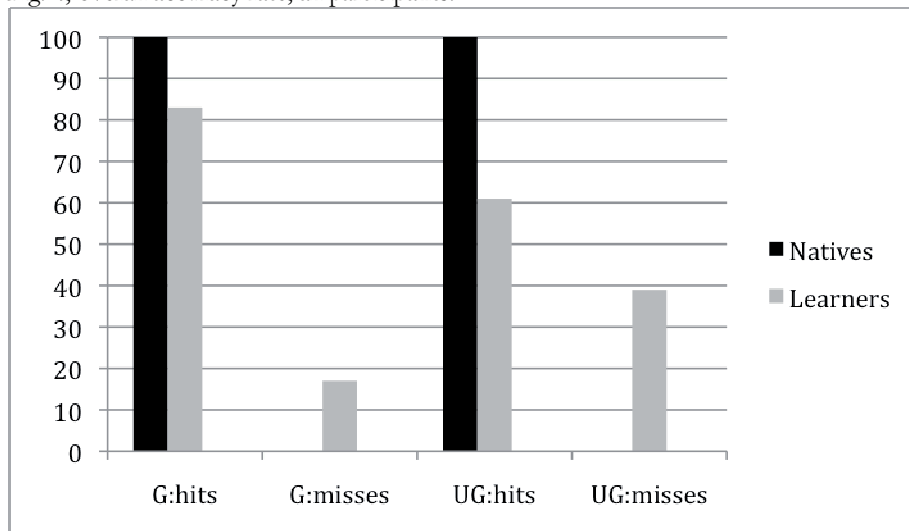
4.9 Results

4.9.1 Overall results

For the sake of clarity, let us repeat: the learners had to deal with four sentence types, two grammatical and two ungrammatical structures. If the learners had acquired the German main and subordinate clause in a native-like manner, we would have found a level of acceptance of the grammatical sentences and a level of rejections (with

corrections) of the ungrammatical sentences similar to that of the native-speakers-control group. This was however not the case, as shown in figure (4) below.

Fig. 4, overall accuracy rate, all participants.



Now let us turn to the exact distribution in the learners' responses. The learners have 188 rejections out of 1211 responses to grammatical sentences (cf., table 4). Further, there are 389 acceptances out of 1002 responses to ungrammatical sentences (cf., table 5). This tells us that the learners have not acquired the structures completely. There is also a certain number of 'non-data', a category including either skipped items or uninterpretable data, which mostly refer to cases where a structure is rejected and no correction is made, which makes it impossible to know on which grounds the structure is rejected. (For the exact distribution of all responses at an individual level, see www.fraita.su.se.)

Our learners are acquiring the target language and can be defined as being at an intermediate level of acquisition. It is therefore hardly surprising that the learners do not behave like native speakers. There are however some interesting tendencies in the response pattern. We can see that the learners judge the grammatical sentences better (1023 hits, 84.5%), than the ungrammatical ones (613 hits, 61.2%, cf., table 4), whereas the natives do not exhibit such a difference based on the stimuli being grammatical or not. This will be discussed in the discussion section below. In table (4), the responses to the two grammatical stimuli types are represented.

Table 4, all subjects' responses

Grammatical stimuli	G:en 'Ich sehe ihn'		G:fr '...daß ich ihn sehe'	
30 items X 44 subjects (1211)	Hits 488	Misses 126	Hits 535	Misses 62
%	79,5	20,5	89,61	10,39
Total Hits	1023 (84,5%)			
Total Misses	188 (15.5%)			

As seen in table (4) above, there are as many as 126 misses involving rejections of grammatical main clauses and, interestingly, only 62 misses involving rejections of grammatical subordinate clauses. In total, we found 1023 hits (correct judgements) of 1211 grammatical sentences (84.5%). We can conclude that, according to the 75% criterion, our learners have reached the proficiency level, where they can judge grammatical stimuli. Considering the high percentage (20.5%) of misses on grammatical main clauses seen in table (4) above, it is somewhat surprising that only 10.4 % of the grammatical subordinate clauses are rejected. This result will be discussed in the discussion section below. For now, we conclude that among these learners the subordinate clause is dealt with in a more correct way than the main clause.

Turning to the ungrammatical clauses (see table 5 below), we find the following pattern: there are 613 hits (rejections of the ungrammatical items) in the learner data, and 389 misses (where the learners accepted an ungrammatical sentence).

Table 5, all subjects' responses

Ungrammatical Stimuli	U:fr *'Ich ihn sehe'		U:en *'...daß ich sehe ihn'	
30 items X 44 subjects (1002)	Hits 198	Misses 327	Hits 286	Misses 191
%	37,7	62,3	60	40
Total Hits	484 (48,3%)			
Total Misses	518 (51,7%)			

We may conclude at this point that when comparing the results from grammatical and ungrammatical sentences, there is a difference. The learners seem to be at a proficiency level when they can handle sentences, which are grammatical, but as for the ungrammatical sentences this is not the case. As shown in table (5), the overall accuracy rate for ungrammatical sentences is only 61.2 %, a figure that, according to the 75% acquisition criterion, indicates that structures like this cannot be said to have been acquired.

We will now give a detailed account of the differences between the two groups, returning to our hypotheses a-d, presented above, addressing the research questions: can L2 transfer be found at intermediate levels to some extent? Can the learners' hits and misses be traced back to their L2? In order to test our hypotheses we will look at a between-group comparison.

4.9.2 Results: group comparisons

The two groups behaved significantly differently as to the object pronoun placement in both main and subordinate clauses.³³ The group with L2 French accepted preverbal pronouns or moved the object into a pre-verbal position to a higher degree, while the group with English as L2 accepted and produced structures that resemble the English word order, [Verb Pronoun], to a larger extent. In the following tables, the hits and misses are represented.

Starting with sentence type G(en), recall our expectations that the English L2 group would accept them (have 'hits') to a higher degree than the French L2 group. This expectation was based on the hypothesis of positive transfer from English L2 and negative transfer from French L2. Table (6) below compares the two groups' results as regards this structure, grammatical main clauses reflecting the word order of English. The English L2 group has an overwhelming number of hits (95.2%). In the French L2 group we also find more hits than misses (63%), but what is interesting is the high number of misses.³⁴ In 111 cases (37%), the participants with French as an L2 rejected a grammatical sentence and also corrected it in an ungrammatical way, converting it into an ungrammatical sentence corresponding to the French word order. In the English L2 group this happened only in 15 cases (4.8%). The difference is significant ($p < 0.001$) between the two groups. We can conclude, according to the 75% accuracy criterion, that the English L2 group has acquired this structure, which is not the case for the French L2 group.

³³In order to evaluate hypotheses of variables in contingency tables, the chi-square test was used or, in the case of small expected frequencies, Fisher's Exact Test (Montgomery, 1991). All analyses were carried out by use of the SAS system (SAS Institute Inc, 1999–2001), and the 5% level of significance was considered. In the case of a statistically significant result the probability value (p-value) has been given.

³⁴ An anonymous reviewer suggested that a within group comparison of the data would not support the hypothesis that L2 plays a significant role in L3 acquisition. Implicitly, this reviewer argues that the fact that the French L2 group has more than 50% hits would indicate that they have acquired the structure, similarly to the English L2 group. This is an interesting remark, but as already pointed out, the learners observed in this study are not beginners and therefore it is not surprising that they can all handle the TL structure to some extent. However, in line with other researchers, we set the acquisition criterion at 75%. Accordingly, the English L2 group can be said to have acquired the structure and the French L2 group cannot. Furthermore, as already pointed out, there is a significant difference between the groups as to the relation between hits and misses.

Table 6, G(en): Grammatical Sentence with English word order, main clause

Group	Misses	Hits	Total responses	Non data	Total input
English L2	15 4.78	299 95.22	314	16	330
French L2	111 37.00	189 63.00	300	30	330
Total	126	488	614	46	660

As for sentence type G(fr), grammatical subordinate clauses, with a word order corresponding to that of French, we expected the French L2 group to accept them to a higher degree than the English L2 group (i.e., more 'hits' in the French L2 group), because of positive transfer from French L2 and negative transfer from English L2. Table (7) compares the two groups' results as regards this structure. In this case, the French L2 group mainly accepted the grammatical sentences, thus scoring a somewhat higher number of hits (92.6%) than the English L2 group, which however accepted as many as 86.3% of the grammatical items. This means that, according to the 75% criterion, both groups can be said to have acquired the subordinate clause, if tested only on grammatical sentences. Nevertheless, the difference as to the degree of accuracy is still significant ($p < 0.01$) between the two groups.

Table 7, G(fr): Grammatical Sentence with French word order, subordinate clause

Group	Misses	Hits	Total responses	Non data	Total input
English L2	39 13.68	246 86.32	285	45	330
French L2	23 7.37	289 92.63	312	18	330
Total	62	535	597	63	660

To sum up, the grammatical main clauses were dealt with in a more correct way by the English L2 group (95.2% hits), than by the French L2 group (63% hits). As for the grammatical subordinate clauses, we have 86.3% hits in the English L2 group and 92.6% hits in the French L2 group. We can conclude that, according to our 75% criterion, both groups have acquired the grammatical subordinate clause, whereas the grammatical main clause is only acquired by the L2 English group. Yet, there is a significant difference between the groups that can be explained with transfer from their L2s respectively.³⁵

³⁵ According to the reviewer mentioned in footnote 34, there might be some kind of interplay between typology or psychotypology and the L2 status factor. We do not disagree with this idea in principle; however our data do not support this suggestion, except for the grammatical main clauses, and only if we consider English as psychotypologically closer to German than French. It would not explain why the

Turning to the ungrammatical stimuli, we start with the sentences of the type U(fr), which we expected the English L2 group to reject and correct (get ‘hits’) to a higher degree than the French L2 group, again because of positive transfer from English L2 and negative transfer from French L2 respectively. Table (8) compares the two groups’ results with regard to this structure, ungrammatical main clauses with a word order corresponding to that of French. The English L2 group only accepted 6.9% of the ungrammatical items, while in 93.1% of the items they detected the ungrammaticality and fixed the sentences, which again makes the group pass the 75% accuracy criterion. The French L2 group mainly accepted the ungrammatical sentences, thus scoring a much higher number of misses (71.3%). The difference is significant ($p < 0.001$) between the two groups.

Table 8, U(fr): Ungrammatical Sentence with French word order, main clause

Group	Misses	Hits	Total responses	Non data	Total input
English L2	19 6.93	255 93.07	274	56	330
French L2	179 71.31	72 28.69	251	79	330
Total	198	327	525	135	660

Finally, for sentence type U(en), ungrammatical subordinate clauses, with a word order corresponding to that of English, we expected the French L2 group to reject and correct them (get ‘hits’) to a higher degree than the English L2 group, because of positive transfer from French L2 and negative transfer from English L2. As can be seen in table (9), the French L2 group detected the ungrammaticality and fixed the sentence in 82.9% of the cases. The English L2 group mainly accepted the ungrammatical sentences, thus scoring a much higher number of misses (61%) than the French L2 group. The difference is significant ($p < .001$) between the two groups.

Table 9, U(en): Ungrammatical Sentence with English word order, subordinate clause

Group	Misses	Hits	Total responses	Non data	Total input
English L2	152 61.04	97 38.96	249	81	330
French L2	39 17.11	189 82.89	228	102	330
Total	191	286	477	183	660

To summarize, the responses to the ungrammatical stimuli give us clear support for the L2 status factor hypothesis, the groups judged the sentences in a manner that can be traced back to their L2s. The L2 English group detected the ungrammaticality in sentences with a French word order in 93.1% of the cases, whereas the L2 French

English L2 group scores better in the subordinate clause than in the main clause. We will provide a different account in the discussion section.

group only had an accuracy rate of 28.7% on the same structure (cf., table 8). As for the ungrammatical sentences with English word order, the response pattern is almost the contrary, that is to say, the French L2 group had an accuracy rate of 82.9% which for the English L2 group was 39% (cf., table 9).

4.10 Discussion and conclusions

From the numbers presented in tables (6-9), we can conclude that subordinate clauses seem to be easier to hit, generally, than main clauses. Especially the structure G(fr), the grammatical subordinate clause, was relatively easy to judge for both groups. We can only speculate on why this is the case. A possible explanation is that the German subordinate clause is easier to acquire because of its underlying syntactic simplicity: recalling the structure represented in figures (2) and (3), we repeat that the basic word order in German is SOV according to Grewendorf (1988), Haider (1993) and Zifonun et al. (1997), and no verb raising takes place in the subordinate clause, as this position is occupied by the complementizer (den Besten & Edmondson, 1983). This might be an explanation as to why the subordinate clause is easier for both groups to judge, cf., suggestions concerning the VP structure and (absence of) functional categories in early IL, made by, for instance, Vainikka and Young-Scholten (1994, 1996) and Eubank (1993/94, 1994). However, as already observed, only the judgement of the grammatical subordinate clause points at acquisition in both groups according to the 75% accuracy criterion. This leads us over to a discussion of the judgement of grammatical versus ungrammatical test items. If we compare the overall hits in both groups, we find that 84.5% of the grammatical sentences are judged in a correct way, whereas the ungrammatical sentences received 48% hits. These numbers indicate that grammatical sentences are easier to judge than ungrammatical sentences for a non-native speaker. This is maybe not so surprising, considering that certain generative studies on language acquisition indicate that learners of a non-native language tend to accept not only grammatical sentences, but also ungrammatical ones, because of a not fully developed intuition for the TL (Flege, Yeni-Komshian & Liu, 1999; White, 1989b).³⁶ Further, as we argue, the IL grammar is susceptible to influences from previously acquired languages, and especially from other foreign languages in case of L3 learning. We suggest that the L3 learner tends to “recognize” structures known from either the TL or another foreign language and therefore accepts ungrammatical structures in addition to the grammatical sentences, according to the TL.

It is important to note that even if both groups can judge the *grammatical* subordinate clause to a level of accuracy, which reaches above 75%, it cannot be claimed generally that they have acquired the subordinate clause to the same degree. The English L2 group does not judge (reject and correct) *ungrammatical* subordinate clauses in more than 39% of cases, while the French L2 group has a level of accuracy of 82.9% (cf., table 9).

Our results clearly show both positive and negative transfer from the participants' L2s: the distribution of acceptances and rejections can be ascribed to negative transfer from English L2 in U(en) and positive transfer from English L2 in G(en). In a similar

³⁶ We would like to thank Niclas Abrahamsson for a fruitful discussion on the topic of GJ responses.

way, we find evidence for negative transfer from French L2 in U(fr) and positive transfer from French L2 in G(fr). We can conclude that learners who have reached a sufficiently high level in their L2 will transfer IL structures into the L3, independently of the correctness of these structures in the TL. The putative transfer from the weaker L2s, Irish and Flemish, mentioned in section (7), cannot be found. As already indicated, such transfer would yield a higher correctness for the English L2 group, and in the French L2 group transfer would have led to the same result as L1 transfer from English. None of these scenarios were realized.

On the basis of the results in the present study, as well as those of our previous study, we claim that L2 has a stronger role than L1 in L3 acquisition. Our results do not point at any L1 transfer, and thus do not confirm the CEM, according to which both L1 and L2 transfer are active, giving preference to the one background language which will lead to more successful transfer.

The transfer from L2 to L3 found in this study is either positive or negative, that is, the effect of transfer from L2 to L3 depends on the objective similarities between L2 and L3. Our explanation as to why the L2 takes on a stronger role than the L1, is the L2 status factor, which is built upon features such as a higher degree of similarity between L2 and L3 than between L1 and L3, regarding age of onset, outcome, learning situation, metalinguistic knowledge, learning strategies and degree of awareness in the language learning process.

CHAPTER 5.

THE IMPACT OF THE L2 STATUS FACTOR ON THE ACQUISITION OF GERMAN AS AN L3. A STUDY OF ADVERB PLACEMENT.

Y. Falk, submitted.

5.1 Introduction

It is a hotly debated topic whether syntactic transfer occurs in second language acquisition or not, and similarly whether it plays a role in the acquisition of a third language, and if so, whether the influence comes from the first or second language. In the field of syntactic transfer in L3 acquisition three hypotheses have been proposed: the *Cumulative Enhancement Model* (CEM, Flynn, Foley & Vinnitskaya 2004), the *L2 Status Factor Hypothesis* (LSFH, Bardel & Falk 2007, Falk & Bardel 2010 & in press) and the *Typological Primacy Model* (TPM, Rothman 2010 & in press, Rothman & Cabrelli-Amaro 2010). In the present study of the acquisition of verb phrase adverb placement, these three transfer hypotheses will be tested on two groups of L3 learners of German; a group of learners with French L1/English L2 and a second group of learners with English L1/French L2. These language combinations are ideal for testing the hypotheses since the target language, German, displays both verb raising (in main clauses) and non-verb-raising (in subordinate clauses), whereas the two background languages, French and English, differ in this regard. In French the verb raises in both main and subordinate clauses, whereas it does not in English. This combination is a useful tool to disentangle the transfer source in the data, since the results can conform to either English or French word order. The study also relates to the well-known debate in L2 acquisition on adverb placement, according to which the L1 parameter setting sometimes is transferred, and sometimes not. The data in this study consist of grammaticality judgement with correction tasks, in which the materials display both grammatical and ungrammatical positioning of the VP adverb in relation to a thematic verb.

The paper is structured as follows: section 2 provides a background to transfer and non-transfer hypotheses of syntax for both L2 and L3 acquisition; section 3 presents an introduction to the generative account of the positioning of a VP adverb with respect to the verb, in German, French and English, respectively, and an overview of earlier research on L2 (and L3) acquisition of adverb placement. Section 4 outlines this study, that is, participants, data collection and coding, concluding with predictions and analyses. In section 5 the results are presented. And finally, the article concludes with a discussion and some final remarks.

5.2 The hypotheses about transfer of syntax in L3 acquisition

Whereas the role of the L1 in L2 acquisition has been debated for a long time, the study of the possible role of all background languages in L3 acquisition has a much shorter research history. In the case of acquiring an L2 the following hypothetical possibilities have been suggested:

- (I) The L1 grammar influences the (initial) L2 grammar – Full transfer (e.g. White 1989a, Schwartz & Sprouse 1996)
- (II) The L1 grammar does partially influence the (initial) L2 grammar – Partial transfer (e.g. Eubank 1994, Vainikka & Young-Scholten 1996, Beck 1998)

(III) The L1 grammar does not influence the (initial) L2 grammar – No transfer (e.g. Platzack 1996, Epstein, Flynn & Martohardjono 1998)

When it comes to the acquisition of an L3 there is room for not only these hypotheses (I-III), but also for additional hypothetical possibilities on specific transfer from the L2 to the L3:

- (IV) The L2 grammar influences the (initial) L3 grammar
- (V) The L1 and the L2 grammars influence the (initial) L3 grammar.

If transfer is expected, there is also room to hypothesise that other factors have an impact on the source of transfer, such as (psycho)typology (cf., Rothman in press) or different status of the background languages (cf., Bardel & Falk 2007). In the last decade, the issue of the role of the background languages in the acquisition of syntax in L3 has arisen. Three hypotheses have been proposed: the *Cumulative Enhancement Model* (CEM, Flynn et al. 2004), the *L2 Status Factor Hypothesis* (LSFH, Bardel & Falk 2007, Falk & Bardel 2010 & in press) and the *Typological Primacy Model* (TPM, Rothman 2010 & in press).

Starting with the CEM (Flynn et al. 2004), language acquisition is assumed to be cumulative, and the learner can make use of all earlier acquired languages when constructing a new grammar. By default the L1 is transferred, but this tendency will be superseded by the L2 if the searched feature value is not present in the L1, but only in the L2. In such cases the L2 is drawn upon to supply the L3 with the appropriate feature value. Consequently, typology is argued to have an impact on the transfer source, such that the more typologically proximate the L2 or the L1 is to the L3, the more likely it is to be transferred. One crucial notion here is that transfer is only facilitating, that is, only values that will yield a target-like L3 grammar will be transferred. Feature values that do not match the L3 will not be transferred according to this model.

The LSFH stem from the *L2 status factor* (Bardel & Falk 2007, Falk & Bardel in press), which has its origin in Williams and Hammarberg's (2009 [1998]) study on L3 lexical acquisition. Williams and Hammarberg attributed a primary status to the L2 in the acquisition of an L3, which suggested a likelihood of favouring a secondary language as a source for transfer, and not the L1. Bardel and Falk's study on L3 syntax in the initial state supported an impact from the L2 status factor in the syntactic domain. Their results showed that at the initial stage of L3 acquisition, the L2 may function as a filter, hindering the L1 to be transferred even in cases where transfer from L1 would have led to a target-like interlanguage (IL). The specific language combination used in their study made it possible to rule out the effect of the (psycho)typology factor, since even when there was a (psycho)typological overlap between the L1 and the L3, the L2 was transferred. In Falk and Bardel (in press) these findings were further investigated in L3 learners being at an intermediate proficiency level of the L3. The results showed that the L2 was the dominant transfer source, even at higher proficiency levels. Falk and Bardel draw the attention to the similarities that underlie adult L2 and L3 acquisition in terms of age of onset, outcome, learning situation, metalinguistic awareness, learning strategies and consciousness about the language learning process –

all points that set L2 and L3 acquisition apart from L1 acquisition in terms of possible cognitive status (cf., also Falk & Bardel 2010, where this issue is further advanced).

The TPM (Rothman 2010 & in press) is a development of the findings in Rothman and Cabrelli-Amaro (2010) who tested the CEM and the L2 status factor on L3 data, which involve typologically very proximate languages. They found that only L2 properties were transferred, yielding both target-like and not target-like structures. However, the language combinations used did not allow the hypotheses made by the CEM and the L2 status factor to be disentangled with the language combinations of L1s and L2s English and Spanish and L3s Italian and French. Rothman and Cabrelli-Amaro suggested a modified version of the CEM, where (psycho)typology may be a factor that influences the transfer source. This is further advanced in Rothman (2010 & in press) where the TPM is introduced. The TPM predicts that “[s]yntactic properties of the closest (psycho-)typological language, either the L1 or L2, constitute the initial state hypothesis in multilingualism, whether or not such transfer constitutes the most economical option” (Rothman in press). By the economical option Rothman means the language systems that would provide the best source of transfer for the L3 in terms of yielding target-like structures. However, (psycho)typology outweighs economy. Therefore he argues that transfer can both facilitate and hamper the acquisitional process.³⁷

In this study, new data will be presented in order to explore which of the three hypotheses that best predicts the source language of transfer, or if the putative hypothesis that limits transfer to occur from L1 only is supported.

This study focuses on the acquisition of German as an L3 in two groups with English as L1 and French as L2, or vice versa. For these language constellations, the different transfer hypotheses make different predictions: (1) The L1 transfer hypothesis predicts that only the L1 (either English L1 or French L1) should transfer. (2) The LSFH predicts that the L2 will be transferred (either English L2 or French L2). These two hypotheses therefore predict that the two learner groups will behave differently in their L3, that is, in a manner that can be traced back to their L1 or their L2, respectively. (3) The CEM predicts that both the L1s and the L2s will be transferred. When there is a feature value in L1 that matches the L3 the L1 will be the transfer source and when there is a feature value in the L2 corresponding to the L3 this language will be transferred. The CEM therefore predicts that there will be no differences between the two groups, as both English and French are possible transfer sources either as L1 or L2. (4) Finally, the TPM claims that (psycho)typology will be decisive on the source of transfer. This model would therefore predict more or less the same results from both groups, since both learner groups share the same source languages. If both learner groups produce similar results, no obvious distinction can be made between CEM and TPM. “Thus, the TPM can only be differentiated from CEM under particular language pairing for which they make distinct performance predictions” (Rothman 2010).

³⁷ One question that arises is how the TPM can be a modification of the CEM, since the CEM is based on feature values that are the same in L1/L2 and L3, which is not the assumption in the TPM

These four hypotheses will be tested on adverb placement in German, a syntactic feature that is well-studied in many languages.

5.3 Adverb placement

5.3.1 Syntactic aspects

In this section I will briefly describe the position of adverbs with respect to finite thematic verbs in German, to be compared to the positions in English and French. A VP adverb is a word that modifies the verb, as in (1b) relative to (1a).

- 1a. Ginger sleeps.
- 1b. Ginger often sleeps.

In L1 and L2 acquisition research, the negation is the most commonly studied adverb (e.g. Hawkins 2001 chapter 3 for an overview, Hyltenstam 1978, Cancino, Rosansky & Schumann 1978, White 1992, Towell & Bazergui 1993, Eubank 1993/1994, 1996 and Meisel 1997). It has also been studied in L3 acquisition (Bardel 2000, 2006, Bardel & Falk 2007). In this study the negation is excluded and we concentrate on VP adverbs like: *soon*, *always*, *often*, *maybe*, etc. The rationale for excluding the negation is its somewhat peculiar behaviour in both English and French syntax. In English a negated clause must undergo do-insertion and in French the negation is split into *ne* and *pas*, two elements that embrace the verb. VP adverbs behave in a much more straightforward way, in their positioning with respect to the verb in German, English and French.

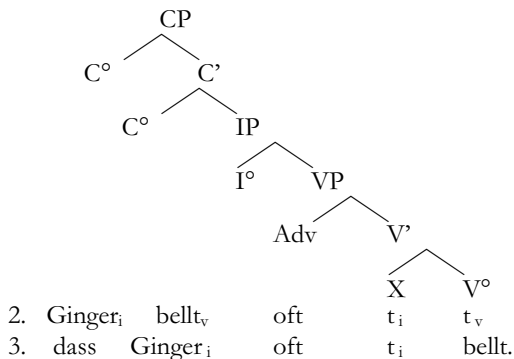
The position of a VP adverb in the clause is dependent on whether the verb moves out of the VP, or remains in situ (cf., Emonds 1978, Pollock 1989, Zanuttini 2001). Consider the following German examples:

2. Ginger bellt oft.
Ginger barks often
'Ginger often barks.'
3. Mein Nachbar sagt dass Ginger oft bellt.
my neighbour says that Ginger often barks
'My neighbour says that Ginger often barks.'

In a German main clause like (2) the adverb is post-verbal, and in a subordinate clause (3) the adverb is pre-verbal. This asymmetry is due to verb movement. In a subordinate clause, the finite verb does not move, but remains in situ, but in a main clause it raises out of the VP (to the CP). German is a verb-final language, which is visible in the subordinate clause. Following the mainstream literature it can be assumed that there is a directionality parameter that determines the word order in the VP. This hypothesis is labelled "The symmetry hypothesis" and states that the basic word order in German is

SOV³⁸ (cf., Grewendorf 1988, Haider 1993, Haider & Rosengren 1998). In the main clause the V2 property forces the verb to move up to the second position of the clause. A contemporary (minimalist) account for the V2 property is that V2 languages have a strong V-feature in C, which overtly attracts the finite verb in a main clause (e.g., Platzack 1998, Roberts 2001). But, as for the subordinate clause, C is assumed to be occupied by the complementizer *dass* (that) which prevents the verb from landing there (cf., den Besten 1983). For the purposes of this study, it will be sufficient to work with a basic version of the German structure, which accounts for the internal relation between the verb and the VP adverb only, as seen in Fig 1.

Fig. 1, the structure of the German main and subordinate clause



Following Pollock’s proposal from 1989 the VP adverb is adjoined in the specifier of the VP; in my simplified account directly under the IP (or the TP in a later, and more detailed account³⁹). Within this account word order variations across languages are explained in terms of the presence or non-presence of verb movement, which occurs when an inflection feature in the IP (or CP) attracts the verb.

As seen above, German exhibits an interesting pattern for the relative order of the finite verb and the adverb (see 2 and 3 above). These internal orders remain the same,

³⁸ This is not indisputable. An alternative proposal “the universal basic structure” (cf., Kayne 1994, Zwart 1997), argues that the basic word order is SVO in all languages, and hence there is no parametric variation between languages that account for this kind of cross-linguistic variation regarding initial/final positioning of the verb. Consequently, this kind of variation is attributed to other properties in the syntax such as verb movement and object shift, cf., Zwart 1997).

³⁹ For a completely different account, see Cinque (1999) who argues that the adverb can occur in various specifier positions in the clause derivation. This suggestion will not be discussed here, mainly because it makes no predictions for analysing interlanguage syntax.

even though there are multiple potential positions for adverbs and objects in a German clause, due to scrambling, as exemplified in examples (4a-c).

- 4a. Ginger hat die Hundekuchen zweifelsohne **gern** **gefressen**.
 ‘Ginger has the dog-biscuits doubtless with-pleasure eaten’
- b. Ginger hat zweifelsohne die Hundekuchen **gern** **gefressen**.
- c. Ginger hat zweifelsohne **gern** die Hundekuchen **gefressen**.
 (based on Vikner’ examples 1995: 493)

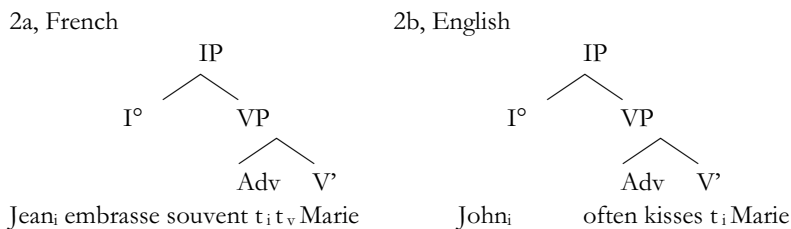
Scrambling is purely pragmatically motivated, whereas syntactically it is explained by movement of the adverbs and object (cf., Delfitto & Corver 1997, Vikner 1995, Haider & Rosengren 1998)⁴⁰. However, for the purpose of this study, there is no call for a deeper account of scrambling, since the relative order of adverbs and finite verbs remains the same in both main clauses as shown in (4a-c) and subordinate clauses.

Turning to English and French, there is a vast literature on the placement of adverbs with respect to the verb in both languages. Let us start with the well-known example that illustrates the mirror image of these two languages with postverbal adverbs in French (5) and preverbal adverbs in English (6):

- 5. Jean embrasse souvent Marie.
 Jean kisses often Marie
 ‘Jean often kisses Marie.’
- 6. John often kisses Mary.

As mentioned, the discrepancy between the languages is accounted for with cross-linguistic variants of verb movement (cf., Pollock 1989, Jones 1996, Haegeman & Guéron 1999, Roberts 2001). The finite French verb raises out of the VP, yielding a V-Adv order, whereas the finite English thematic verb remains in its VP, as illustrated in Fig. (2).

Fig. 2a&b, the structure of French and English



In with French, the finite verb precedes the adverb independently of whether the clause contains an auxiliary (7-8) or is a subordinate clause (9).

⁴⁰ For arguments to the contrary, see for instance Fanselow (1990).

7. Ginger aboie souvent.
Ginger barks often
'Ginger often barks.'
8. Ginger a aboyé souvent.
Ginger has barked often
'Ginger has often barked.'
9. Mes voisins disent que Ginger aboie souvent.
my neighbours say that Ginger barks often
'My neighbours say that Ginger often barks.'

However, as pointed out by Pollock (1989), for instance, the adverb can precede the verb in French, when the main verb is an infinitival, as in (10a), the opposite is also possible, as in (10b).

- 10a. Souvent aboyer, c'est rare.
often to-bark it-is rare
- 10b. Aboyer souvent, c'est rare.
to-bark often it-is rare
'To bark often is rare.'

As seen before, the word order is the reverse in English in both main (11) and subordinate clauses (12), with the adverb preceding the verb in both cases.

11. Ginger often barks.
12. My neighbours say that Ginger often barks.

The standard account for this word order is that the English verb remains in situ. However, if the finite verb is an auxiliary (have or be), the word order pattern is different as in (13) and (14).

13. Ginger is often barking.
14. Ginger has often barked.

The word order illustrated in (13) and (14) has led to the assumption that an auxiliary always leaves the VP and lands in the IP. In the literature there is no real consensus on the location to which the English auxiliary moves. Chomsky (1995) suggested that the difference in verb movement is due to the strength of features in the different verb types; auxiliaries carry a strong I-feature, which forces the verb to move to the IP (see also the Split INFL hypothesis, as proposed by Pollock 1989).

To summarize, in French the finite thematic verb raises to the IP, yielding a Verb-Adverb order. In contrast, English finite thematic verbs remain inside the VP and therefore the order is Adverb-Verb. German, finally, makes use of both options, depending on whether the clause is a main or a subordinate clause.

The study of L2 acquisition of adverb placement has a tradition within the generative paradigm with a particular focus on transfer (e.g., is the L1 feature value for verb raising, strong or weak, implemented in the interlanguage?) as well as on whether functional features are present in the interlanguage at all (since all verb movement depends on the presence of functional features).

Many studies have examined the placement of both negations and other adverbs in order to establish whether or not the verb has raised. In her classic study, White (1989a) compared L1 English learners of French, and L1 French learners of English and discovered that the L1 English group was more successful in acquiring the postverbal positioning of the adverb in French than were the L1 French learners in acquiring the preverbal positioning of the adverb in English. She accounted for this asymmetry in terms of transfer and the role of positive evidence from the input, which French displays. In two other studies White (1990/1991, 1991) further explored the interlanguage of French L1 speakers acquiring English as an L2. She found that these learners incorrectly transferred their strong feature value (verb raising to I) into L2 English. White (1992) studied verb movement from various angles: question formation, negative placement and adverb placement. Her L1 French learners of L2 English exhibited an interesting pattern, accepting non-raising verbs in question formation and negative placement (e.g. 'Do you like pepperoni pizza?' White 1992:130), but accepting verb raising in the context of adverbs (e.g. *'Linda takes always the metro' 1992: 130). Thus, on the basis of positive evidence of do-support, the learners manage to leave the thematic verb in situ, whereas for adverbs there is no such trigger that could facilitate the acquisition of non-raising of the verb.

Hawkins, Towell and Bazergui (1993) challenged White's findings (1989a) by arguing that the differences between White's two groups were only superficial. They tested L1 speakers of English on various verb-movement related structures in L2 French. Like White (1992) Hawkins et al. found that the subjects managed verb movement in negated structures to a much higher degree than in structures with adverbs. Their account for this was that the L2 learners had not acquired the obligatory verb raising in French, and only appeared to have acquired the negated structure, which was not based on verb raising, but rather on a "misanalysis of *pas*" (1993: 219).

Comparable studies, of French speakers acquiring English as an L2 have investigated how such learners acquire the non-movement of thematic verbs over adverbs (Trahey & White 1993, Trahey 1996). The overall results showed that even though the French L1 speakers were quick to leave the thematic verb in situ in negated structures, they were not able to master this with VP adverbs, again a result that supported the hypothesis that they did not acquire the weak feature in the English IP, but rather (optionally) retained their L1 strong setting.

The studies above have one thing in common. They investigate the possibility of transfer by including one language that raises (French) and one that prohibits raising (English). This type of design has been questioned by Eubank and Grace (1996) and Eubank, Bischof, Huffstunler, Leek and West (1997), who wanted to test whether verb raising is possible even if not present in either L1 or L2. Both these studies examine Chinese L1 speakers acquiring English, that is, two languages that prohibit verb raising. The results surprisingly show that the verbs optionally raise in the interlanguage, a

result that cannot be explained by transfer. This behaviour is accounted for in terms of Beck's impairment hypothesis (1997) according to which an (adult) L2 grammar will never resemble that of an L1, and thus cannot host certain functional features, and therefore may display an optional behaviour.

To summarize so far, all the above-mentioned studies have found (optional) verb raising in the IL, either because this feature has been transferred from the L1, or because the L2 does not obey the same principles as the L1 and therefore admits the verb to raise.

In contrast, Yuan (2001) found no verb raising at all. He compared three groups of L2 learners of Chinese (a non-raising language), whose L1s either allowed verb raising (German and French), or did not allow verb raising (English). The lack of verb raising in any language group was accounted for in terms of an absence of verbal inflection in the L2, and positive evidence given from the input.

In 2005 Chu and Schwartz challenged the results by Eubank et al. (1997) and Yuan (2001), by partially replicating White's 1990/1991 and 1991 studies, but with Chinese L1 speakers acquiring L2 English (again two languages that prohibit thematic verb raising). They found that their subjects had a lower acceptance rate on the ungrammatical verb raising structures than White's subjects had; a result that naturally does not support the L1 transfer hypothesis. But verb raising was nevertheless present in their L2 data, and they discuss the possibility of the TL English input causing the problem, in which the adverb does not have an absolute position, as in (15a-c) (examples taken from Chu & Schwartz 2005:83, cf., Ernst 1994: 49-50):

- 15a. John should **obviously** go.
- 15b. **Obviously**, John should go.
- 15c. John should go **obviously**. (=in an obvious manner)

According to Chu and Schwartz, this kind of input is misleading for the learner, and may therefore have an impact on how consistent the learners are in their placement of adverbs.

A recent study on the acquisition of adverb placement (and related syntactic properties) in both L2 and L3 acquisition, by Leung (2006), supports the transfer hypotheses (transfer from L1 and L2, respectively). Leung compares the acquisition of French as an L2 or L3, and English as an L3, with various background languages (L1 Vietnamese/Chinese, L2 French and L3 French and English) and finds transfer from both L1 and L2. L1 transfer is manifested in the L2 group, whereas the L3 groups exhibit more L2 transfer. Leung argues that transfer is dependent on the level of proficiency. There is strong level of transfer at a low stage and only residual transfer effect at an intermediate stage, which can explain variation in the interlanguage (2006: 181).

As can be concluded from this overview, there is not much consensus on the acquisition of adverb positioning with respect to the verb(s). Some studies support the L1 transfer hypothesis (e.g., White 1989a, 1990/1991, 1991; Trahey & White 1993; Trahey 1996) others discuss the differences of whether the verb has to move over an adverb or a negation (e.g., White 1992, Hawkins et al. 1993). Other studies find incorrect optional verb raising over adverbs is also found in IL data, where neither the

L1 nor the L2 exhibit verb raising (e.g., Eubank & Grace 1996; Eubank et al. 1997), and one study finds no verb raising at all (Yuan 2001). Yet another study discusses incorrect verb raising in terms of confusing input (Chu & Schwartz 2005) and finally one study supports the L1 transfer hypothesis in L2 acquisition along with L2 transfer in L3 acquisition (Leung 2006). The contradictory evidence in the literature suggests that we need to examine the situation for L3 acquisition using a methodology that allows for more rigorous control over the source and target languages.

5.4 This study

5.4.1 Method

5.4.1.1 Participants

Participants in this study were 60 L3 learners of German: 30 native speakers of English, who have acquired French as an L2 (the L2 French group) and 30 native speakers of French, who have acquired English as an L2 (the L2 English group, see table 1)⁴¹. All participants are acquiring German as an L3. Both language groups comprise participants from both level A2+ *Waystage* and a slightly higher level, B1 *Threshold*, following the Common European Framework of Reference (Council of Europe 2001). In addition, a control group of 10 native speakers of German participates.

Table 1, the participants

Language	L2 French	L2 English	Total
Proficiency level	A2+ (n=8)	A2+ (n=8)	16
	B1 (n=22)	B1 (=22)	44
Total	30	30	60

The L2 French group A2+ participants were in their second year of studying German in secondary school and they had all studied French for 3-4 years. The L2 French B1 participants were all in their first or second year of German at the University (Trinity College, Dublin) and had studied French for 4-6 year. As for the L2 English group, the A2+ participants were also in their second year of German in secondary school, and had studied English for, on average, 4 years; the B1 participants were in their first or second year of German. They were found at two universities in Belgium (Université de Mons-Hinaut and Université de Liège) and they had studied English for 4-6 years.

The L2 French group had also studied Irish as an L2 and the L2 English group had studied Flemish as an L2 before starting with German. I return to this issue in section (5.4.4.1).

⁴¹ Initially there were more (76) participants undertaking the GJCT. In the oral interview about their language habits there were some who reported having another L1 than French or English, or possessing additional L2s. These were excluded from the study. The aim with the oral interview was also to assess their level of German, and was carried out by a trained CEFR-rater.

The task used was an absolute and binary grammaticality judgement correction task (GJCT) in German in which the participants were asked to decide whether the given structure was good or bad, and if they chose bad, they were also asked to correct the sentence (for a discussion on the advantages of using GJCT in L3 research, see, for instance, Falk & Bardel 2010). The complete GJCT consisted of 144 items, only 16 of which are analysed for the purpose of this study⁴², half of which were grammatical and half of which were ungrammatical. Four types of German sentences were tested, with the following structures:

- G:fr grammatical main clause, corresponding to French word order
- G:en grammatical subordinate clause, corresponding to English word order
- U:en ungrammatical main clause, corresponding to English word order
- U:fr ungrammatical subordinate clause, corresponding to French word order

The 16 German test sentences with grammatical and ungrammatical word orders either matched the French (G:fr and U:fr) or the English (G:en and U:en) word order, see examples (16)-(19), in which the French and the English grammatical equivalents are given.

- | | | | |
|------|------|---------|---|
| 16a. | G:fr | GERMAN | Er isst oft Schokolade. |
| 16b. | | FRENCH | Il mange souvent du chocolat.
He eats often chocolate
'He often eats chocolate' |
| 17a. | G:en | GERMAN | Ich weiß, dass er oft Schokolade isst. |
| 17b. | | ENGLISH | I know, that he often eats chocolate. |
| 18a. | U:en | GERMAN | *Er oft isst Schokolade. |
| 18b. | | ENGLISH | He often eats chocolate. |
| 19a. | U:fr | GERMAN | *Ich weiß, dass er isst oft Schokolade. |
| 19b. | | FRENCH | Je sais qu' il mange souvent du chocolat.
I know that he eats often chocolate
'I know that he often eats chocolate' |

Each of the four types had four items with different vocabulary. The choice of vocabulary was based on words from lower proficiency level tests in a German L2 test

⁴² The GJCTs used in this study, is part of a larger project (cf., Falk & Bardel in press). Initially there were 30 sentences that involved adverb placement. Among these three could not be used due to technical problems. Further exclusions had to be made in order to (i) balance the amount of grammatical/ungrammatical sentences and (ii) balance the amount of main and subordinate clauses. This was done by excluding seven grammatical sentences, which had no corresponding ungrammatical sentence and four were excluded on the basis of random selection.

book (*Einstufungstests für Anfänger- und Fortgeschrittenenurse: Deutsch als Fremdsprache* 1994). The 16 items that were used in this study consisted of eight grammatical sentences and eight ungrammatical sentences.

Every participant's booklet with the stimuli had a unique internal order of the sentences. This randomising was done to make sure there was no bias due to order effect, for instance initial nervousness and final tiredness (for a discussion, cf., Tremblay 2005).

5.4.1.3 Procedure

The task was a pen and pencil task. Each participant received a booklet containing the GJCT. On the front cover of the booklet, an illustration of the response procedure was given. The examples illustrated how words should be moved in an ungrammatical sentence if judged as 'bad' and that nothing had to be done if the sentence was judged as 'good'. Participants were asked to respond as quickly as possible, because there was a time limit of 45 minutes, leaving less than 20 seconds to judge and correct each sentence. The tasks were all carried out during regular lesson-time and administrated by their teachers, so as to avoid self-selection bias to only include extra-motivated learners. In addition, the GJCT was administrated to a control group of 10 native speakers of German at Stockholm University, who undertook the test outside the classroom.

5.4.2 Coding

The data were coded into 'hits' and 'misses' and 'skips':

'Hit' was either a correct acceptance of a grammatical sentence, (G:fr and G:en), or a correct rejection, including a correct fix, of an ungrammatical sentence, (U:en and U:fr).

'Miss' was either a incorrect rejection of a grammatical sentence, (G:fr and G:en) or an incorrect acceptance of an ungrammatical sentence, (U:en and U:fr).

When no answer was given to an item, or when the answer could not be qualified as a 'miss' or 'hit' the responses were coded as a 'skip' (a missing value).

A correct response to a grammatical sentence generated a 'hit'. But, there were other cases where the coding was not so straightforward. For instance, when an ungrammatical sentence was correctly rejected, the participant also had to correct the sentence. If this was done successfully s/he scored 'hit'. However, if the sentence was not fixed correctly and still yielded an ungrammatical structure (with respect to the internal order of the verb and the adverb only), the response was scored as a 'miss', as in (20).

20. U:en

Er oft isst Schokolade.	Response → BAD → correction:	Oft er isst Schokolade.
He eats often chocolate.		Oftentimes he eats chocolate.

Moreover, if a grammatical sentence was rejected, the correction also had to be taken into consideration. There were cases when the correction was completely irrelevant⁴³, as in (22).

21. G:fr

Er isst <i>oft</i> Schokolade.	Response → BAD → correction:	Der isst oft Schokolade.
He eats often chocolate.		He/It eats often.

In these cases, the response was coded as a ‘hit’ since there was no indication that the participant did not master the structure under observation in this study.

There were further instances of rejections of a sentence, which comprised no correction at all, or a correction that eliminated the adverb, these responses are coded as a ‘skip’, since it is impossible to know the grounds for the rejection. In the next section, the results will be discussed.

5.4.3 Expectations and hypotheses

In order to test the hypotheses a clarification about what the data tell us about acquisition and transfer is needed. I will interpret a low accuracy rate on both grammatical and ungrammatical stimuli as evidence of negative transfer. That is, if a participant, for instance, from the EnL2 group incorrectly accepts a U:en sentence, this will be interpreted as being a consequence of transfer of L2 English word order. If this participant incorrectly accepts a U:fr sentence this is interpreted as a result of her transferring L1 French word order. The reverse pattern is assumed to hold for the FrL2 group.

A remark must be made regarding the use of GJCT. This kind of data harvesting has been criticized as suffering from, among other things, response bias, mostly in that subjects accept everything (cf., Birdsong 1989). For instance, Johnson, Shenkman, Newport and Medin (1996) suggested that this might be an outcome of the syntactic properties being optional since the grammar is not yet complete (cf., also Felser, Marinis and Clahsen (2003). If this assumption were correct, we would expect results that show a high number of correct sentences and an over-acceptance of ungrammatical sentences. Once the structure is acquired completely, the learner will be able to detect ungrammaticality. This is also found and discussed in a number of studies. For instance, White states: “Subjects are noticeably less accurate on the ungrammatical sentences, which supports the claim that these ESL learners are not

⁴³ Corrections made were either of the type exemplified, or concerned German spelling (following confusions about the German orthography reform of 1996 (*Rechtschreibreform*)).

observing the Subset principle in their acquisition of English” (White 1989a: 151). White thus also interprets the ability to judge grammatical sentences correctly as a precursory step to the ability to detect and reject ungrammatical sentences (for similar findings, see for instance Schachter 1989, Montrul, Foot & Perpiñán 2008, Falk & Bardel in press). Taking this into account, I expect the grammatical sentences to be judged more correctly, whereas the ungrammatical sentences are assumed to lead to more misses.

Moreover, I have, in line with previous research, set the hypothetical level for acquisition according to quantitative criteria to 75% (cf., Falk and Bardel in press, Leung 2006). Thus, a structure is assumed to be acquired when it is correctly accepted and rejected in at least 75% of the cases.

I now return to the initial hypotheses for L3 acquisition (here briefly repeated, cf., section 2 above).

(I & II) Both the full and partial L1 transfer hypotheses (e.g. Schwartz & Sprouse 1996, Vainikka & Young-Scholten 1996), predict that the two groups here will behave differently. The L2En group, with French L1, would mainly score ‘hits’ on (ii) G:fr and (iii) U:fr, since these word orders correspond to their L1. In contrast, the L2Fr group would mainly score ‘hits’ on (i) G:en and (iv) U:en, since these word orders correspond to their L1.

(III) The non-transfer hypothesis (e.g. Epstein et al. 1998) predicts that there will be no difference between the two groups. They are expected to produce similar patterns of ‘hits’ and ‘misses’ given that they were at corresponding proficiency levels.

(IV) The LSFH (Bardel & Falk 2007, Falk & Bardel in 2010 & press) predicts that the two groups will exhibit different response patterns, just like the L1 transfer hypotheses, but crucially, in the opposite direction. The L2En group should score ‘hits’ on (i) G:en and (iv) U:en, since these word orders correspond to their L2, and the FrL2 group are expected to mainly score ‘hits’ on : (ii) G:fr and (iii) U:fr, since these word orders correspond to their L2.

(V) The two L1 and L2 transfer hypotheses (the CEM advanced by Flynn et al. 2004, and the TPM suggested by Rothman 2010 & in press) share the expectation of non-transfer, in that that they do not foresee any (major) differences between the two groups. The CEM predicts that L1 acts as a default transfer source, but when the searched structure is not present, the L2 will supply the L3 with positive transfer. One key question for the CEM when applied to German is if two different background languages will be transferred at the same time, one in the main clause and one in the subordinate clause, as illustrated in (22).

22a. Ich sehe, dass er Schokolade isst.

‘I see, that he chocolate eats’

22b. Dass er Schokolade isst, sehe ich.

‘I see that he eats chocolate’

In the German MC the verb has raised to the CP (due to the V2 property, as illustrated in 22 a and b) whereas the verb in the SC remains in its original position. Would it then be expected by the CEM that a learner with L1 English and L2 French (or the other

way around) is able to transfer the French verb raising feature in the MC, and the English non-raising feature in the SC? This possibility has to be further explored. The predictions of the TPM are based on typological proximity between the languages, which here seems to lead to three possible predictions for transfer in these groups when applied to L1/L2 English and French and L3 German:

(1) TPMa, *genetic* properties determine the transfer source, which would speak in favour of English being transferred into German, since these two languages are more closely related.

(2) TPMb, the *ad hoc match* between structures, such as (non)raising of verbs cannot stipulate the outcome of transfer behaviour with these language combinations, since German exhibits both.

(3) TPMc, (*psycho*)*typology* might predict English as a default cousin to German, based on the fact that English also is a Germanic language and there are certain structural and lexical similarities between them. But in spite of both being Germanic languages English does not exhibit the verb second, verb finality, scrambling, etc, that is syntactic properties that are often associated with Germanic languages. On the other hand, there are many cognates shared by English and French, which might have an impact on the (*psycho*)*typology*. In sum, the TPM does not seem to predict reliable differences between the two groups.

5.4.3.1 Other L2s

The participants in the present study had learned more than one L2 before learning German as an L3. The L2En group had studied Flemish in secondary school; they reported on low recency and proficiency in this language. However, if Flemish L2 were to have an impact on the L3 German, I would expect this group to correctly place the adverb in both the main and subordinate clause since the word order is the same. The participants in the L2Fr group had learned Irish as an L2, they also reported on low recency and proficiency in this additional L2. The standard word order in Irish is VSO, which often leads the adverb to be in a postverbal position, even though it sometimes can occur clause initially, yielding a preverbal order (see for instance McCloskey 1996 and Duffield 1995). If Irish word order were to transfer, it would either be in the same manner as their L2 French (postverbal position of the adverb), or in a varying optional way. This means that if Irish were to transfer this would either lead to the same word order as transfer from French, or this would lead to a higher variation in this group.

5.4.4 Analyses

The statistical analysis excluded seven participants, due to a large amount of skipped items. We performed a split plot ANOVA on accuracy rate, with two within-subjects factors ‘grammaticality’ and ‘word order’ and one between-subjects factor, which compared the two groups’ responses.

5.5 Results

The results from the native German speaker control group showed no misses for items regarding adverb placement.

The interest of the analysis is on the two language groups' (EnL2 and FrL2) acceptance rate of the four sentence types, here repeated:

- G:fr grammatical main clause, corresponding to French word order
- G:en grammatical subordinate clause, corresponding to English word order
- U:en ungrammatical main clause, corresponding to English word order
- U:fr ungrammatical subordinate clause, corresponding to French word order

Table (2) shows the mean percentage of 'hits' for the two language groups across the four sentence types in German:

Table. 2, the two language groups' hit-percentage on all four sentence types

L2	Mean	Std. Deviation	N
G:fr			
L2 English	86	21.1	28
L2 French	97	8.3	25
Total	91	17.1	53
G:en			
L2 English	91	17.6	28
L2 French	76	24.1	25
Total	83	22.0	53
U:en			
L2 English	37	30.7	28
L2 French	79	30.7	25
Total	57	36.9	53
U:fr			
L2 English	85	20.2	28
L2 French	25	22.0	25
Total	56	36.9	53

Table (2) shows that the grammatical sentences (G:fr and G:en) were judged with a much higher accuracy rate than the ungrammatical (U:en and U:fr) and that the grammatical sentences do not exhibit any huge differences between the groups (the maximum difference being 15%, for G:En). However, the ungrammatical sentences exhibit large differences between the two research groups.

The response patterns are given in Figures (3) and (4). The 'G' and 'U' refer to the grammaticality of the sentence, and 'French' indicates that the word order in the German sentences corresponds to that of French, the same holds for the label 'English'.

Fig. 3, L2En group, accuracy rate

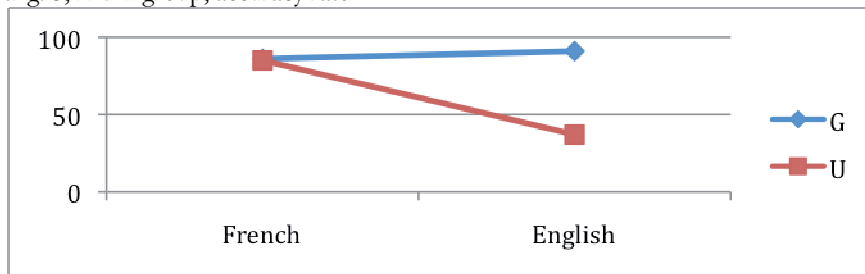


Fig. 4, L2Fr group, accuracy rate

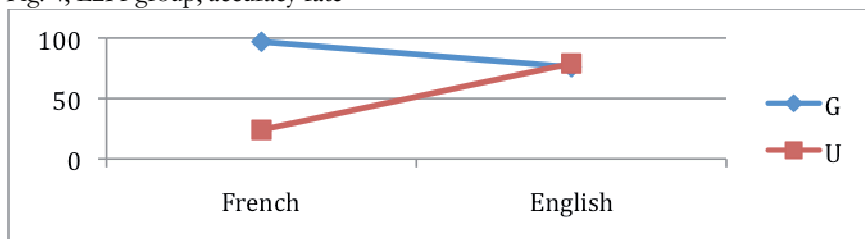


Figure (3) and (4) present the mean acceptance rates of the 16 sentences, four per condition, and show the differences in response pattern clearly. The L2En group (Fig. 3) scores almost only hits on the grammatical French word order structure (G:fr *Er ist oft Schokolade*). The same is found in the L2Fr group (Fig. 4). The L2En group (Fig. 3) handles the grammatical English word order structure (G:en) with almost the same accuracy rate (91%) as the G:fr. In contrast, the L2Fr group scores 76% (Fig. 4) correct on the structure G:en. Both groups can be said to have reached a level in German where they are able to deal with grammatical sentences (according to the 75% criterion).

The situation is different for ungrammatical sentences. The L2En group has no problems in rejecting (and correcting) the ungrammatical French word order structure – they successfully detect the ungrammaticality of the sentence and correct the sentence in a satisfying manner (85%, Fig. 3), but when it comes to the ungrammatical sentences that reflect the English word order they incorrectly accept them and score only 38% ‘hits’. Exactly the reverse pattern is found in the L2Fr group (Fig. 4). They detect the ungrammaticality of a sentence with English word order, and correct the sentence (79% hits), whereas they incorrectly accept the ungrammatical sentence that corresponds to the French word order in 25% of the cases.

A split plot ANOVA was performed on the hits (accuracy rate) with two within-subjects factors (grammaticality (G versus U) and word order (French versus English)) and one between-subjects factor (the L2 groups (L2En versus L2Fr)). The three main effects returned the results expected. There was no effect for word order ($F = .753$, $df = 1,51$, $p = .390$, $\text{partial } \eta^2 = .015$), meaning that on average the test sentences based on the two word orders were equally difficult. No effect was found for L2 group ($F =$

2.874, $df = 1,51$, $p = .096$, $\text{partial } \eta^2 = .053$). Both L2 groups performed on an equal level. There was a main effect of grammaticality ($F = 75.984$, $df = 1,51$, $p = .000$, $\text{partial } \eta^2 = .598$). Ungrammatical utterances had significantly lower accuracy scores than grammatical ones. Given the opposite patterns in figures (3) and (4), significant interaction effects were expected to occur. The interaction effect between grammaticality and L2 group was not significant ($F = 1.096$, $df = 1,51$, $p = .300$, $\text{partial } \eta^2 = .021$), nor was the interaction between word order and grammaticality ($F = 3.185$, $df = 1,51$, $p = .056$, $\text{partial } \eta^2 = .070$). This means that the L2 groups have the same difference between handling grammatical and ungrammatical stimuli, and that word order produces the same difference between grammatical and ungrammatical stimuli. In contrast, the interaction word order by L2 group ($F = 50.942$, $df = 1,51$, $p = .000$, $\text{partial } \eta^2 = .500$) makes it clear that the two groups react differently to the word order patterns, which is strengthened by the three-way interaction L2 group by word order by grammaticality ($F = 121.793$, $df = 1,51$, $p = .000$, $\text{partial } \eta^2 = .705$) which reflects the opposite pattern shown in figures (3) and (4).

In sum, the two groups behave similarly towards grammatical sentences, even though there is a numerical tendency for them to differ on grammatical subordinate clauses (the maximum difference being 15%, for G:En). In contrast, the L2 groups behave significantly differently towards different word order patterns in ungrammatical sentences, with the L2En group scoring more misses on English-like word order than the L2Fr group, and the L2Fr group scoring more misses on the French-like word order than the L2En group. I will argue that these differences can be explained by L2 transfer. The participants incorrectly accept sentences in a manner that suggests transfer of word order patterns from their respective L2s.

5.6. Discussion and conclusions

5.6.1 Responses to the grammatical sentences

According to the 75% acquisition criterion, both groups have acquired the grammatical sentences; for the G:fr structure (a grammatical main clause with raised verb, e.g. *Er isst oft Schokolade*), the L2En group scores 86% ‘hits’ and the L2Fr group scores 97% ‘hits’. The G:en structure (a grammatical subordinate clause with non raised verb, e.g. *...dass er oft Schokolade isst*) is also acquired by both groups, the FrL2 group scores 76% ‘hits’ and the EnL2 group reaches a accuracy rate of 91%. As seen in the previous results section, the difference between the groups on grammatical structures is not significant. The results from the grammatical sentences provide potential support for the LSFH as well as the CEM and the TPM. Recall that the CEM and the TPM assume that the L3 learner may transfer from both background languages, which could be a possible explanation to why there are no significant differences between the groups. The same argument could also validate the non-transfer hypothesis.

On the contrary, the L1 transfer hypothesis might be dismissed by the relatively poorer results of the FrL2 group on the G:en structures. There is no explanation for why they wouldn’t be able to successfully transfer their L1 English and reach a higher accuracy rate than 76% on these structures.

5.6.2 Responses to the ungrammatical sentences

The ungrammatical sentences provide better grounds for distinguishing the hypotheses. For the U:en structure, an ungrammatical main clause (**Er oft isst Schokolade*), which reflects the English word order, we see that the L2En group scores only 37% correct, whereas the L2Fr group judges this structure with the a non-raised verb correctly in 79% of the cases. For the U:fr structure, an ungrammatical subordinate clause (**...dass er oft isst Schokolade*) which reflects French word order, with the compulsory verb raising, the reverse response pattern is found: here the EnL2 group correctly detects the ungrammaticality of the sentence and corrects it in 85%, whereas the FrL2 group predominately incorrectly accepts the sentence (25% 'hits').

These results clearly support the LSFH: the EnL2 group transfers their L2, which leads to mainly correct judgements of the U:fr structure, but incorrect judgements of the U:en structure, where the transfer from their L2 English leads to incorrect responses. Conversely, the FrL2 transfers their L2 into the U:fr, and are therefore able to judge the sentence correctly, but when it comes to the U:en structure SC, the L2 transfer leads to incorrect acceptances.

5.6.3 General discussion and conclusions

Although responses to the grammatical sentences did not allow us to rule out the CEM, the TPM, and the non-transfer hypothesis, the results from the ungrammatical sentences do.

First, the analyses revealed that there were differences between the two groups. This does not support the non-transfer hypothesis, according to which the background languages do not have an impact on the TL, since this would had led all learners' results to look the same. Secondly, the L1 transfer hypothesis is also not supported, since the two groups behaved in a way that cannot be traced back to their L1s respectively when it comes to ungrammatical sentences. Thirdly, the CEM predicts that the learner should be able to make use of all her previous languages in the acquisition of an additional one, and therefore that transfer (from L1 and L2) will only occur when there is an overlap of properties between the background and target languages. Clearly, this is not what is happening in this data, because the learners show convincing evidence of non target-like German behaviour with the ungrammatical sentences. In addition, the CEM does not predict a difference between the groups, since they all possess the same background languages, which could supply them with the appropriate feature value.

As for the TPM, one major difference from the CEM is that transfer is argued to be both positive and negative, and (psycho)typology will determine the source of transfer. As discussed in section (4.4) above, it is hard to anticipate what (psycho)typology would mean for the language combination English, French and German. Leaving these issues aside, my interpretation of the TPM is that it would not predict any major differences between the two groups, since we can assume that learners share a common perception of (psycho)typology, which is not depending on whether the language is an L1 or an L2.

In line with previous research (cf., also Bardel & Falk 2007, Falk & Bardel 2010 & in press), the participants were expected to correctly judge the grammatical sentences to a much higher degree than the ungrammatical. For instance, Montrul et al. (2008: 98) claim that when following a normal developmental trend advanced learners are expected to show lower rates of acceptance of ungrammatical sentences than low proficiency learners. According to Leung (2006:181) the prediction for transfer, in both L2 and L3 acquisition, is as follows:

- Stage I: Strong transfer effects (hence low accuracy rate)
- Stage II: Variability (residual transfer effects)
- Stage III: Approaching/achieving target-like performance (transfer effects gradually and finally overridden leading to (very) high accuracy rate.

The learners in the present study can be said to be at stage II, considering their variability in the application of verb raising. In line with the LSFH, this transfer stems from the L2. The putative transfer from the weaker L2s, Irish and Flemish, cannot be established. L2 Flemish would have led the L2Fr group to score only 'hits', since the order is the same as in German – this was definitively not the case. For the L2En group a recognized transfer from L2 Irish could not make any rigid predictions, since the adverb is sometimes placed before the verb, and sometimes after. However, the most common order is, postverbal positioning of the adverb, which would have led to the same transfer as from their stronger L2, French, and therefore this is not possible to tease apart here. Falk and Bardel (in press), found no transfer of word order from L2 Irish by the same participants, in the same battery of GJCT. In that study, focus was on the positioning of object pronouns a word order structure that differs in a manner that made it possible to rule out transfer from L2 Irish. I can only speculate, but it does not seem plausible that the L2En group transferred from their weak and non-recent L2 Irish on some structures, but not on others.

The aim of this study was to evaluate and test predictions derived from three hypotheses about transfer in L3 acquisition looking at adverb placement. Results from earlier L2 studies in this domain have been contradictory, although a majority supports the findings from White (1989a and later), namely that verb raising properties are transferred from the L1 and depending on the language combination, this will lead to target-like L2 structures or not. Many of these earlier studies involve English and French, as either L1 or L2. The present study also involves English and French as either L1 or L2, but here the target language is German as a third language. The results revealed that the L2 was the default transfer source in the acquisition of an L3, which was expected by the LSFH. Moreover, the use of German as a target language also made it possible to test how learners handle the acquisition of a language that displays both verb raising properties (as in the main clause) and non-raising properties (as in the subordinate clause). It turned out that both properties were susceptible to transfer from the L2, since the groups displayed a result pattern that can be explained by negative transfer from the L2 in both main and subordinate clauses.

The research on transfer in L3 syntax is a new field. The hypotheses proposed will doubtlessly be challenged and questioned, and thereby refined and reformulated. They may not in fact be in competition with each other, but rather complement each other when it comes to pinpointing the source of transfer in L3 acquisition. The field will benefit from future research involving different data collection methods, since it might not be the case that this data collection method covers all different aspects of syntactic transfer in L3 acquisition.

CHAPTER 6.

CONCLUSIONS AND DISCUSSION

6.1 Summary of the results from the three empirical studies

The objective of this thesis was to shed light on the role of background languages in the L3 acquisition of syntax, and, more specifically, to explore the role of L2 in the L3 acquisition process. The three empirical studies in this thesis all indicate that L2 syntax plays a decisive role in L3 acquisition, both at the initial stage (see chapter 3) and at higher levels of proficiency (see chapters 4 and 5). In the first study, chapter 3, the positive and negative transfer from L2 was explained by adopting Williams and Hammarberg's L2 status factor (2009 [1998], a study on lexical acquisition). According to them, an L3 learner suppresses their L1 in order to sound 'more foreign' which gives the L2 a special and privileged status, and therefore, makes it more likely that it will be transferred into the L3. In the first study, it was suggested that the special status of the L2 was the reason for the syntactic transfer to stem from the L2 in the L3 acquisition. In chapter 2 the first attempt was made to put the L2 status factor into a hypothesis, the L2 Status Factor Hypothesis (LSFH) that predicts transfer from L2 (and not L1) in L3 acquisition, and what the rationale would be for its impact. As previously mentioned, Williams and Hammarberg posited that the L2 has a special status in relation to the L3 because the learner wanted to sound foreign, and not like a native speaker of their L1. We attempted to uncover more reasons for the impact of the LSFH in L3 acquisition by taking additional factors into account. A formally acquired L2 and a formally acquired L3 have many cognitive and external similarities, elements that are completely different in the acquisition of an L1 (e.g., L2 and L3 are learned in the same manner, the learner makes use of various strategies and the learner is aware of the language learning process).

In the first study, chapter 3, we examined the placement of negation in relation to the finite verb in spoken initial L3 acquisition data. The results showed that participants transferred their L2 word order into the L3, both when transfer from the L2 led to target-like word order (e.g., L2 German/L3 Swedish), and when it did not, that is, when transfer from the L1 would have led to target-like word order (e.g., L1 Dutch/L3 Swedish). This outcome was explained with the L2 status factor. It was suggested that

the L2 status factor applies to all linguistic levels and that it prohibits direct transfer from the L1, making L1 unavailable as a resource for L3 acquisition.

The two other empirical studies tested the impact of the L2 status factor at an intermediate level of proficiency in L3 German. Again, two language groups, which mirrored each other, were compared (L1French/L2English and L1English/L2French). In the second study (chapter 4) the participants were tested on the placement of object pronouns with respect to the finite thematic verb in a grammaticality judgement task, and in the third study (chapter 5) the participants were tested on the placement of the adverb with respect to the finite thematic verb in the same task. We hypothesized that if the L2 word order is transferred, the participant will accept ungrammatical constructions that copied the word order from the L2. This turned out to be the case in both studies.⁴⁴ When comparing the transfer behaviour from the learners in the first study (chapter 3), who were at an initial stage, to the transfer behaviour from the learners in the two following studies (chapter 4 and 5), we find quantitative, but no qualitative differences; the beginners transfer word order from their L2 to a higher degree than do the intermediate learners. This is as expected for L2 acquisition. Leung (2006:181) makes the following quantitative transfer predictions (for negative transfer only):

Stage I: Strong transfer effects (hence low accuracy rate)

Stage II: Variability (residual transfer effects)

Stage III: Approaching/achieving target-performance (transfer effects gradually and finally overridden leading to (very) high accuracy rate.)

In line with Leung (see also Eubank et al. 1997, Neeleman and Weerman 1997), we decided to set an acquisition criterion of a 75% accuracy rate. Leung (2006, fn. 12) suggests the following scale:

We consider accuracy rates that fall within the range 0%-40% as 'failure', 40%-60% as 'optional' or 'variable', 60%-75% as 'approaching target-like' and above 75% as 'successful acquisition' or 'target-like'.⁴⁵

In the first study on negation placement (a word order property that depends on whether a language exhibits the V2 rule, that is, if it does exhibit the V2 rule then it is postverbal negation and if not, then it is preverbal negation), we had two groups of learners of either Swedish or Dutch as an L3. These languages exhibit the V2 rule. The

⁴⁴ No real results could be drawn from the participants' responses to grammatical stimuli. The two language groups responded quite similarly to these. This was explained by the well-attested phenomenon that it is easier to accept than reject a sentence (e.g. Birdsong 1989; Montrul et al. 2008) and also by their proficiency level, which was supposedly high enough to handle grammatical stimuli.

⁴⁵ One important remark, which Leung also brings up, has to be made. These percentages are not absolute and cannot alone explain the stages in acquisition. They are useful only when being applied to compare two or more groups: "we are also interested in the *relative* performance across groups" (Leung 2006: fn. 12, emphasis in original).

participants who were at an initial stage were divided into two groups on the basis of their background languages. The D/G group had a V2 language as L2 (Dutch or German) and a non-V2 language as L1, and the EN group had a non-V2 language as L2 (English). In order to test the L2 transfer hypothesis, we calculated the accuracy rate of instances with a finite thematic verb with postverbal negation. Table 1 summarises the result from the first recording of the longitudinal group data (see tables 4 and 8 in chapter 3 for details) and the individual cross-sectional data and the accuracy rate is calculated for the complete group.

Table 1, accuracy rate for postverbal negation in L3 Swedish or L3 Dutch

Group	Postverbal negation =target like	Preverbal negation = not target like
D/G (n=4)	96%	4%
EN (n=5)	34%	66%

We clearly see that while the D/G group had a high accuracy rate on the postverbal negation (96%), the EN group did not (34%).

We now turn to the data from the two later studies (chapters 4 and 5) where a grammaticality judgment correction task (GJCT) was used on two language groups. The first of these studies was on the acquisition relating to object pronouns in L3 German. Again the learners were divided into two groups on the basis of their background language (the L2English group with L1 French (=L2En), and the L2French group with L1 English (=L2Fr)). The L2En group was expected to transfer their L2 English word order and thus incorrectly accept the ungrammatical structure labelled which corresponds to English word order, as illustrated in (1).

1. GERMAN: *Du weißt, dass ich sehe ihn.
ENGLISH You know that I see him.

For the same reasons we expected the L2Fr group to transfer their L2 French word order and incorrectly accept the ungrammatical structure which corresponds to French word order, as illustrated in (2) and (3).

2. GERMAN *Ich ihn sehe.
3. FRENCH Je le vois.
I him see
'I see him'

In table 2, the overall accuracy rate for the two groups on the ungrammatical stimuli is given (for details see tables 8 and 9 in chapter 4) and the two language groups are compared.

Table 2, accuracy rate object placement in L3 German: ungrammatical stimuli

group	Ungrammatical German sentence, English word order	Ungrammatical German sentence, French word order
L2En (n=22)	39%	93%
L2Fr (n=22)	83%	29%

The L2En group scores only 39% 'hits' on the ungrammatical structure that reflects the English word order (cf., (1)), but the L2Fr group has no major problems in detecting the ungrammaticality of the clause and scores 83%. The opposite response pattern is found in the ungrammatical structure that corresponds to the French word order (cf., (2) and (3)) where the L2Fr group scores only 29% 'hits', compared to the L2En group, with a accuracy rate of 93%.

The third study (chapter 5) comprised the same set of language combinations as the former. The objective was to examine how the L2En group and the L2Fr group handled adverb placement in L3 German and test the *L2 Status Factor Hypothesis* (LSFH). We predicted that the L2Fr group would transfer verb raising from their L2 French leading to adverb placement, as in (4) and (5).

4. GERMAN *Du weißt, dass er isst oft Schokolade.
5. FRENCH Tu sais qu'il mange souvent de chocolat.
You know, that he eats often chocolate
'You know that he often eats chocolate.'

This would lead them to an incorrect acceptance of the ungrammatical structure that reflects the French postverbal adverb placement. The L2En group was expected to accept an ungrammatical sentence that corresponds to the English preverbal adverb placement, exemplified in (6) and (7).

6. GERMAN *Er oft isst Schokolade.
7. ENGLISH He often eats chocolate.

Table 3 summarises the overall accuracy rate on the ungrammatical stimuli from the GJCTs that concerned adverb placement in relation to the finite thematic verb (cf., table 2, chapter 5).

Table 3, accuracy rate adverb placement in L3 German: ungrammatical stimuli

Group	Ungrammatical German sentence, English word order	Ungrammatical German sentence, French word order
L2En (n=25)	38%	85%
L2Fr (n=28)	79%	25%

The L2En group scores 38% 'hits' on the ungrammatical structure that matches the English word order, compared to an accuracy rate of 85% on stimuli that corresponds

to the French word order. The results from the L2Fr almost precisely mirror those of the other group; when an ungrammatical sentence matches the French word order, they detect the ungrammaticality in only 25% of the cases, but in sentences with English word order, they score an accuracy rate of 79%.

All in all, we see that the participants from the first study who were at the initial stage made use of L2 transfer that either facilitated or hampered their performance, as predicted by Leung's Stage I: Strong transfer effects (hence low accuracy rate). In her study, transfer was only negative and generated incorrect structures, but in this study we can see how positive transfer from L2 helps the participants (the D/G group) to reach 96% accuracy, even at the initial stage (which Leung defines as "target-like"). This is in contrast to the EN group, who, due to negative L2 transfer, only reach 34% accuracy rates on this structure (Leung's "failure" range). The intermediate learners from the two other studies also support the expectations of Leung's transfer ranges. Where they can make use of positive L2 transfer (on the ungrammatical stimuli) they reach an accuracy rate between 79% and 93% (cf., tables 3 and 4), but when there is room for negative transfer their accuracy rate is between 25% and 39%. The negative transfer situates the two groups within Leung's "failure range", but the impact of positive transfer makes them reach the "target-like" range, where they are given their accuracy rates for the grammatical stimuli.

6.2 The L2 Status Factor Hypothesis and competing theories for transfer in L3

These three studies all strongly support the LSFH in L3 acquisition. Recall that the LSFH predicts that an L2 will be favoured as a transfer source in L3 acquisition, even if transfer from L1 would lead to target-like structures. The LSFH therefore predicts that transfer can both facilitate and hamper the acquisition of an L3. We suggest that the L2 status factor exerts such a strong influence because of the many cognitive similarities between L2s and L3s which would not apply to L1s, for example, the age of onset, outcome, learning situation, degree of metalinguistic knowledge and awareness, learning strategies and conscious language learning (see fig. 1 in chapter 2). In chapter 2 a neurolinguistic proposal was explored, drawing attention to the distinction between explicit metalinguistic knowledge, which is sustained by declarative memory, and implicit linguistic competence, which is sustained by procedural memory (cf., Ullman 2001; Paradis 2004, 2009). Phonology, morphology and syntax are sustained in L1 by procedural memory and words by declarative memory. The L2 grammar, just like the L3 grammar, is learned in a completely different way and is, therefore, based on explicit knowledge and sustained by declarative knowledge, just as the words in all languages are. We suggest that taking this distinction between different memory sources into consideration can contribute to the understanding of the L2 status factor's strong impact on L3 acquisition of syntax. Bardel and Falk (submitted) discuss the implications of assuming that the L2 and the L3 grammars are sustained by declarative memory, making the two languages more similar to each other than to the L1, whose grammar is sustained by procedural memory. This distinction is promising and should be investigated and tested in more detail. It explains in a fairly direct way why the L2 grammar is transferred into L3 and why the LSFH can make feasible predictions for transfer in L3 acquisition (cf. Bardel & Falk, submitted).

Other factors have been discussed in L3 research to explain why it is sometimes the L1 and sometimes the L2 that is transferred. The most frequently explored factors are recency, proficiency and (psycho)typology. While the first two have mainly been supported in L3 studies on the acquisition of lexical items, the impact of (psycho)typology is currently being discussed in relation to L3 syntax. Both the Cumulative Enhancement Model (CEM, Flynn et al. 2004) and the Typological Primacy Model (TPM, Rothman 2010 & in press) attribute a large role to (psycho)typology. The CEM predicts that both L1 and L2 are transferred into the L3. By default there is a preference for the L1 to be transferred, but if the appropriate parametric value is not present in the L1, the learner resorts to the L2 to obtain the value. The CEM can only account for positive transfer. The TPM suggests that (psycho)typology will determine whether the L1 or the L2 will be transferred, independently of whether this leads to a target-like structure or not. This model has been tested on data including very proximate languages (such as Spanish and Portuguese) and English (Rothman 2010 & in press, Rothman & Cabrelli-Amaro 2010). The TPM was supported as the learners transferred from the language that they understood as being the most similar one, even in cases where this transfer led to ungrammaticality. Despite this, the studies in this thesis do not support either the CEM or the TPM (see especially chapter 5 for an evaluation of these models) because we did not observe any L3 behaviour that could be traced back to transfer from L1, completely independently of how “similar” the languages involved are. The results in these studies only support the LSFH.

6.3 Implications and future directions

This thesis is situated in a research field that is still relatively new. A deeper understanding of the role of background languages in L3 acquisition and of the factors that contribute to the impact of background languages will not only enhance the quality of the research, but will also have implications for language teaching. Teachers will be better able to understand what is happening in the L3 learning process, and therefore teach more effectively. This thesis is also relevant to the long research history on transfer in L2 acquisition, in that it highlights the importance of controlling for the impact of all background languages and not only the L1. If additional languages are overlooked by the researcher, the results may be completely misinterpreted.

The findings in this thesis open a range of new research questions that need to be answered in the future. One is whether, and in what way, the LSHF applies when the L2 is less closely related or shares fewer typological similarities with the L3 than do the languages studied here. For instance, what would the outcome be for a language combination of L1 Swedish, L2 Turkish and L3 Norwegian? It is speculation, but it seems highly unlikely that the L2 will be transferred in such a case, maybe because in such a scenario, it is not traditional language learning that is taking place, but merely a relexification process.⁴⁶ The L3 learner would make use in the relexification scenario

⁴⁶ This process is often used to explain the creation of pidgin and creole languages, or what happens when two languages are in contact. “Relexification is a process by which the vocabulary of a language is replaced by that of another language, while its grammatical structure (morphology, syntax, phonology) is maintained” (Appel & Muysken 1987: 130). See also Bouvy (2000:144) who suggests that transfer from L2

of their L1 Swedish and turn their vocabulary into Norwegian. This relexification assumption is backed up for instance, in the studies by Rothman (2010 & in press), which involved very closely related (Romance) languages, and also in Klein Gunnewiek's study (2000) on the acquisition of L3 German by Dutch native speakers.

Another question is whether the LFSH hypothesis applies in the opposite situation, that is, when all the languages involved are extremely different from each other (e.g., L1 Inuktitut, L2 Spanish and L3 Cantonese). A further issue concerns what happens when the L3 learner possesses two or more L2s at equal levels of proficiency. One tentative assumption is that the LSFH will still be supported but that there are additional factors that determine the transfer source, for instance (psycho)typology. Another possibility is that the L2s will be in conflict, in which case it is difficult to make specific claims about what the transfer would look like. Yet another relevant question is that of the L2 status *per se*. In all studies in this thesis the L2 was learned in a formal educational context (i.e., in the classroom). It is unclear what transfer into the L3 would look like when the L2 is either acquired in an informal setting or as a second L1. In addition, can an L2 lose its L2 status when the learner reaches really high levels of proficiency (for a short discussion, see chapter 3)? Will the type of transfer change or even cease? As suggested by, for instance, Grosjean (e.g., 1999; see also de Bot 2004) we are constantly moving within different language modes. It is therefore possible that one particular language can be the source of transfer one day, and another language is the transfer source another day? The impact of the recency of use of a language on the transfer source is another interesting but unexplored issue.

As briefly discussed in chapter 2, research outcomes are sensitive to the data collection method. In this thesis one study involved semi-spontaneous speech, and the other two Grammatical Judgement Completion Tasks (=GJCT). One of the advantages of using GJCTs is that sentences can be manipulated to very precisely test the impact of specific background language properties. An important result is the strong effect of the grammaticality of the sentences to be judged. Grammatical sentences scored a very high accuracy rate which is in contrast to ungrammatical sentences. It is a matter for future research to determine whether this depends on the participants being at an intermediate level or not. As Cabrelli-Amaro and Rothman (2010) and Rothman (in press) have shown, GJCTs can also be used at a lower level, where participants might not be able to produce sentences of this kind, but are able to judge them. On the other hand, in spoken data, where the participant is allowed to act and produce freely, IL-phenomena that the researcher had not foreseen can widen the understanding of what is going on, or extend the research field. Spoken data can also better contribute to our understanding of the interplay between lexicon, syntax and phonology. Does transfer come from the same language at all linguistic levels? Can a tip-of-the-tongue state activate syntactic transfer from another background language?

For the time being, there are more questions than suggested hypotheses in the L3 research field. Our current understanding of what determines transfer of syntax in L3 acquisition is just at its beginning. The field will clearly benefit from larger projects, with carefully planned data designs in order to test in other learning contexts and

into L3 “is limited to specific parts of speech or linguistic phenomena and consists almost exclusively of a process of relexification”.

language combinations whether or not the LSFH is supported as strongly as this thesis suggests.

Doel van dit proefschrift is om inzicht te krijgen in de rol van eerder verworven achtergrondtalen (zowel de eerste taal (= T1) als de tweede taal (= T2)) in de verwerving van de syntaxis van een derde taal (= T3). In eerder onderzoek naar het leren van een T3 zijn tegenstrijdige resultaten gevonden. Er zijn onderzoeksresultaten die de hypothese steunen dat alle achtergrondtalen van invloed zijn op de T3, maar er zijn ook onderzoeksresultaten die aantonen dat het alleen de T2 een rol speelt in het verwervingsproces van de T3. Tot slot zijn er nog onderzoeksresultaten die tot de conclusie leiden dat de invloed van achtergrondtalen verwaarloosbaar is, omdat het verwervingsproces van een nieuwe taal via vaste stadia verloopt, onafhankelijk van de taalachtergrond van de leerder. Williams en Hammarberg (2009 [1998]) ontdekten in hun gevalstudie naar de T3-verwerving van de woordenschat een algemene tendens om eerder de T2 te activeren dan de T1 in de productie van T3-Zweeds. Ze wezen een speciale status toe aan de T2 in het T3-verwervingsproces en Hammarberg (2001) geeft de volgende uitleg voor de werking van de speciale T2-status: “a desire to suppress L1 as being ‘non-foreign’ and to rely rather on an orientation towards a prior L2 as a strategy to approach the L3” (2001: 36-37) [een streven om de T1 te onderdrukken omdat deze niet ‘vreemd’ genoeg is en om eerder vertrouwen te hebben in een oriëntatie op een voorgaande T2 als strategie om de T3 aan te pakken]. Een dergelijke factor, de *T2-statusfactor*, veronderstelt dat de sterkere activering van de T2 dan de T1 leidt tot een voorkeur voor de T2 als bron van transfer in T3-verwerving. Dat zal in bepaalde gevallen (afhankelijk van de taalcombinatie) leiden tot een vergemakkelijking van het leerproces, maar in andere gevallen tot complicaties. Het onderzoek in dit proefschrift richt zich op de vraag of de T2 van invloed is op de T3-verwerving van de syntaxis.

De invloed van de T2 wordt onderzocht op grond van verschillende syntactische structuren in T3-Nederlands, -Duits en -Zweeds, zowel in het beginstadium als in een later stadium van verwerving. De hypothese van de T2-statusfactor (L2 Status Factor Hypothesis = *LSFH*) wordt verder uitgewerkt als verklaringsbron van de werking en rol van T2-transfer in T3-verwerving. Belangrijk daarin zijn de eigenschappen die gedeeld worden door talen die geleerd worden in een formele, schoolse context, inclusief de identieke rol van cognitieve leerstrategieën. Dat betekent dat T2-transfer ook plaatsvindt waar T1-transfer direct geleid zou hebben tot de beoogde T3-structuren.

Hoofdstuk 2 geeft een overzicht van het onderzoeksveld van de rol van achtergrondtalen in T3-verwerving, met name in de domeinen van het lexicon en de syntaxis. De factoren worden nagelopen waarvan verondersteld is dat ze van invloed zijn op de bron van de transfer (hetzij T1, hetzij T2), met name het tijdstip van verwerving (hoe recent is dat geweest?), taalvaardigheid en (psycho-)typologische afstand. De twee eerste factoren vinden in T3-onderzoek voornamelijk steun in de verwerving van het lexicon, terwijl de invloed van de (psycho)typologie vooral bediscussieerd wordt in relatie tot de T3-syntaxis. Na een overzicht van de invloedrijkste T3-transferstudies wordt ingegaan op neuro-imagingonderzoek naar twee- en meertalige verwerving en wordt aangegeven hoe dit onderzoek zou kunnen bijdragen aan verder inzicht in de werking van transfer.

Hoofdstuk 3 omvat een empirisch onderzoek waarin de verwerving van negatie in twee groepen leerders vergeleken wordt. Het gaat om de plaats van de negatie in T3-Zweeds en -Nederlands, waarbij de leerders absolute beginners zijn. Doel van het onderzoek was de evaluatie van de zogeheten Developmentally Moderated Transfer Hypothesis (DMTH), voorgesteld door Håkansson, Pienemann en Sayheli (2002), die stelt dat alle leerders door vergelijkbare verwervingsstadia gaan. Daartegenover staat de hypothese die stelt dat de T2 een sterkere transferfactor is in T3-verwerving dan de T1. De resultaten leveren geen steun op voor de DMTH, maar wel voor de hypothese van de T2-transfer, zowel in positieve als in negatieve zin. Dat houdt in dat de resultaten op syntactisch vlak de hypothese van de T2-statusfactor steunen.

In hoofdstuk 4 wordt de invloed van de T2-statusfactor getest voor leerders op een middenniveau van T3-taalvaardigheid. Doel is om na te gaan of de T2-statusfactor nog steeds van kracht is na het beginstadium van T3-verwerving. Twee groepen met T3-Duits (met de achtergronden T1-Engels/T2-Frans en T1-Frans/T2-Engels) werden vergeleken wat betreft de plaats in de zin van de objectspromina. De resultaten laten een duidelijk verschil zien tussen de twee groepen en wel op een manier die consistent is met transfer vanuit de betreffende T2's. De invloed van de L2-statusfactor wordt daarmee opnieuw bevestigd en dat vestigt de aandacht op de mogelijke overeenkomsten van cognitieve aard tussen de T2 en T3, die geleerd worden in een formele, schoolse context (in tegenstelling tot de T1). Het gaat daarbij zowel om de manier van het leren van een taal, de leeftijd waarop begonnen wordt met het leren, de uitkomsten van het leren, de leersituatie als het gebruik van het metalinguïstisch bewustzijn.

Het derde en laatste empirische onderzoek in hoofdstuk 5 test drie concurrerende hypothesen over de rol van de T1 en T2 in T3-verwerving. Het syntactisch verschijnsel betreft de verwerving van de plaats van bijwoorden ten opzichte van het werkwoord in T3-Duits door twee groepen leerders met een middenniveau van T3-taalvaardigheid. Het (i) Cumulative Enhancement Model (CEM, Flynn et al. 2004) voorspelt dat alle eerder verworven talen mogelijke bronnen van transfer zijn in de T3-verwerving, op voorwaarde dat er een structurele overlapping is tussen de brontaal (T1 of T2) en de doeltaal (T3). Volgens het (ii) Typological Primacy Model (TPM, Rothman 2010, in druk) is het optreden van transfer afhankelijk van de (psycho)typologische relatie: de leerder zal die taal als bron van transfer inzetten wanneer die het sterkst lijkt op de T3, ook als die keuze niet de meest economische is. Tot slot is er de hypothese van de L2-statusfactor (LSFH, Bardel & Falk 2007, Falk & Bardel 2010, in druk) die voorspelt dat de T2 de voorkeur krijgt als bron van transfer. De onderzoeksuitkomsten blijken in strijd te zijn met de CEM en de TPM en ze steunen de LFSH.

Dat houdt in dat elk van de drie empirische onderzoeken in dit proefschrift resultaten oplevert die wijzen op de doorslaggevende rol van de T2-syntaxis in T3-verwerving, zowel bij beginnende leerders als bij leerders op een middenniveau van taalvaardigheid. Dat stemt overeen met de LSFH die voorspelt dat de T2 de voorkeur heeft als bron van transfer in de T3-verwerving, zelfs als transfer vanuit de T1 direct zou leiden tot de beoogde T3-constructies. De LSFH houdt in dat transfer de verwerving van een T3 zowel kan vergemakkelijken als bemoeilijken. De verklaring lijkt gezocht te moeten worden in de vele cognitieve overeenkomsten tussen het leren van een T2 en een T3. In hoofdstuk 2 wordt een neurolinguïstische benadering van twee- en meertaligheid

besproken waarin een onderscheid wordt gemaakt tussen expliciete metalinguïstische kennis, die onderhouden wordt in het declaratieve geheugen, en impliciete talige competentie, die onderhouden wordt in het procedurele geheugen (cf. Paradis 2004). Terwijl de T1-grammatica (alsook de fonologie en de morfologie) impliciet is en berust op het procedurele geheugen, berust de T2-grammatica (en dat geldt ook voor de T3, etc.) op expliciete metalinguïstische kennis die opgeslagen is in het declaratieve geheugen. Dit onderscheid tussen verschillende geheugenbronnen kan een bijdrage leveren aan een verklaring van de sterke invloed van de T2-statusfactor op de verwerving van de T3-syntaxis. Bardel en Falk (ingediend) bespreken de implicaties van T2- en T3-grammatica's die berusten op het declaratieve geheugen. Dat maakt de betreffende twee grammatica's meer gelijk aan elkaar dan aan de T1. Het onderscheid is veelbelovend en verdient nader onderzoek. Het biedt een verklaring waarom de T2 zo'n sterke bron van transfer is in de T3 en waarom de LFSH leidt tot correcte voorspellingen over T3-verwerving.

De bevindingen die in dit proefschrift gerapporteerd worden openen de weg naar een reeks van nieuwe en verdere onderzoeksvragen. Eén van die vragen is of en op welke wijze de LSHF van toepassing is wanneer de T2 is in typologisch opzicht meer verschilt van de T3 dan de T1 (bijv. T1-Noors, T2-Engels, T3-Zweeds). Een andere vraag is of de LSFH van toepassing is wanneer alle betrokken talen extreem verschillend zijn van elkaar (T1-Inuktitut, T2-Spaans, T3-Kantonees). Weer een andere kwestie is wat er gebeurt als de T3-leerder twee of meer T2's bezit op een vergelijkbaar niveau van taalvaardigheid. Weer een andere vraag betreft de T2-status op zich. In het onderzoek in dit proefschrift betrof het de T2 geleerd in een formele, schoolse context. Het is nog onduidelijk wat voor transfer er naar de T3 plaatsvindt wanneer de T2 verworven is in een informele context of wanneer de T2 verworven is als een tweede T1. En dan ligt er ook nog de vraag of een T2 zijn T2-status kan verliezen wanneer de leerder hoge niveaus van taalvaardigheid bereikt.

Toekomstig T3-onderzoek in andere verwervingscontexten en met andere taalcombinaties zal moeten uitwijzen of de LSFH al dan niet de sterke mate van steun krijgt die in dit proefschrift naar voren kwam.

- Abutalebi J., Cappa, S. F. & Perani, D. (2001). The bilingual brain as revealed by functional neuroimaging. *Bilingualism. Language and Cognition*, 4, 179–190.
- Albert, M. & Obler, L. (1978). *The Bilingual Brain: Neuropsychological and Neurolinguistic Aspects of Bilingualism*. New York: Academic Press.
- Appel, R. & Muysken, P. (1987) *Language Contact and Bilingualism*. London: Edward Arnold.
- Baker, C. & Prys Jones, S. (1998). *Encyclopedia of Bilingualism and Bilingual Education*. Clevedon: Multilingual Matters.
- Bardel, C. (2000). *La Negazione nell'Italiano degli Svedesi: Sequenze Acquisizionali e Influssi Translinguistici* [Negation in the Italian of Swedes: acquisitional sequences and cross-linguistic influence]. Doctoral Dissertation: Études Romanes de Lund 61. Romanska institutionen, Lunds universitet.
- Bardel, C. (2002). How does French L2 affect Italian L3? Preliminary results of a pilot study. *Proceedings of the Second International Conference on Third Language Acquisition and Trilingualism*. Ljouwert/Leeuwarden: Fryske Akademy, 13-15 September 2001: CD-ROM.
- Bardel, C. (2006). La connaissance d'une langue étrangère romane favorise-t-elle l'acquisition d'une autre langue romane? Influences translinguistiques dans la syntaxe d'une L3? [Does knowledge of a foreign Romance language favour the acquisition of another Romance language? Cross-linguistic influences in the L3 syntax]. *Acquisition et Interaction en Langue Étrangère* 24, 149-180.
- Bardel, C. (forthcoming). The lexicon of advanced L2 learners. In: K. Hyltenstam (Ed.) *High-level proficiency in second language use*. Berlin: Mouton de Gruyter.
- Bardel, C. & Falk, Y. (2004). Can processability be transferred? Paper presented at *The Fourth International Symposium on Processability, Second Language Acquisition and Bilingualism*. University of Sassari. 13-16 April, 2004.
- Bardel, C. & Falk, Y. (2007). The role of the second language in third language acquisition: the case of Germanic syntax. *Second Language Research*, 23, 459-484.
- Bardel, C. & Falk, Y. (submitted). What's behind the L2 status factor? A neurolinguistic framework for L3 research. Paper to be presented at the conference on *Third Language (L3) Acquisition: Developing a Research Base*. University of Iowa, July 2010, Obermann research seminar.
- Bardel, C. & Lindqvist, C. (2007). The role of proficiency and psychotypology in lexical cross-linguistic influence. A study of a multilingual learner of Italian L3. *Atti del 6° Congresso Internazionale dell'Associazione Italiana di Linguistica Applicata*. [Proceedings from the 6th international conference of the Italian association of applied linguistics]. Naples 9–10 February 2006.
- Beck, M.-L. (1997). Regular verbs, past tense and frequency: tracking down a potential source of NS/NNS competence differences. *Second Language Research*, 13, 93-115.
- Beck, M.-L. (1998). L2 acquisition and obligatory head movement. *Studies in Second Language Acquisition*, 20, 311-348.
- Belletti, A. (1990). *Generalized verb movement*. Turin: Rosenberg & Sellier.
- Birdsong, D. (1989). *Metalinguistic Performance and Interlanguage Competence*. New York: Springer.

- Black, P.M. & Ronner, S.F. (1987). Cortical mapping for defining the limits of tumor resection. *Neurosurgery*, 20, 914–919.
- Bley-Vroman, R. (1990). The logical problem of foreign language learning. *Linguistic analysis*, 20, 3-49.
- Bohnacker, U. (2005). Nonnative acquisition of verb second: On the empirical underpinnings of universal L2 claims. In M. den Dikken & C.M. Tortora (Eds.) *The function of Function Words and Functional Categories*. (pp. 41-77) Amsterdam: John Benjamins.
- Bohnacker, U. (2006). When Swedes begin to learn German: from V2 to V2. *Second Language Research*, 22, 443-486.
- Bouvy, C. (2000). Towards the construction of a theory of cross-linguistic transfer. In J. Cenoz & U. Jessner (Eds.) *English in Europe. The Acquisition of a Third Language* (pp. 143–156). Clevedon: Multilingual Matters.
- Cabrelli-Amaro, J. & Rothman, J. (2010). On L3 acquisition and phonological permeability: A new test case for debates on the mental representation of non-native phonological systems. *International Review of Applied Linguistics in Language Teaching*, 48, 275-296.
- Cancino, H., Rosansky, E. & Schumann, J. (1978). The acquisition of English negatives and interrogatives by native Spanish speakers. In E.M. Hatch (Ed.) *Second Language Acquisition: A Book of Readings*. (pp. 207-230) Rowley Mass: Newbury House.
- Cardinaletti, A. (1999). Pronouns in Germanic and Romance languages: An overview. In H. van Riemsdijk (Ed.) *Clitics in the Languages of Europe*. (pp. 33-82) Berlin: Mouton de Gruyter.
- Cenoz, J. (2001). The effect of linguistic distance, L2 status and age on cross-linguistic influence in third language acquisition. In J. Cenoz, B. Hufeisen & U. Jessner, (Eds.) *Cross-linguistic Influence in Third Language Acquisition. Psycholinguistic Perspectives*. (pp. 8-20) Clevedon: Multilingual Matters.
- Cenoz, J. (2003). The role of typology in the organization of the multilingual lexicon. In J. Cenoz, B. Hufeisen & U. Jessner (Eds.) *The Multilingual Lexicon*. (pp. 103-116) Dordrecht: Kluwer.
- Cenoz, J. & Jessner, U. (2000). Introduction. In J. Cenoz & U. Jessner (Eds.) *English in Europe. The acquisition of a third language*. (pp. VII-XII) Clevedon: Multilingual Matters.
- Cenoz, J., Hufeisen, B. & Jessner, U. (2001a). *Cross-linguistic Influence in Third Language Acquisition. Psycholinguistic Perspectives*. Clevedon: Multilingual Matters.
- Cenoz, J., Hufeisen, B. & Jessner, U. (2001b). Introduction. In J. Cenoz, B. Hufeisen, & U. Jessner (Eds.) *Cross-linguistic Influence in Third Language Acquisition. Psycholinguistic Perspectives* (pp. 1–7). Clevedon: Multilingual Matters.
- Cenoz, J., Hufeisen, B. & Jessner, U. (2003). *The Multilingual Lexicon*. Dordrecht: Kluwer.
- Chamot, A. (1973) Phonological problems in learning English as a third language. *International Review of Applied Linguistics*, 11, 243–250.
- Chandrasekhar, A. (1978). Base language. *International Review of Applied Linguistics*, 16, 62-65.
- Chee, M. W. L., Caplan, D., Soon, C. S., Sriram, N., Tan, E. W. L, Thiel, T. & Weekes, B. (1999). Processing of visually presented sentences in Mandarin and English studied with fMRI. *Neuron*, 23, 127–137.

- Chee, M. W. L., Hon, N. Hwee, Lee, L. & Soon, C. S. (2001). Relative language proficiency modulates BOLD signal change when bilinguals perform semantic judgments. *Neuroimage*, 13, 1155–1163.
- Chomsky, N. (1965). *Aspects of the Theory of Syntax*. Cambridge: The MIT Press.
- Chomsky, N. (1981). *Lectures on Government and Binding*. Dordrecht: Foris.
- Chomsky, N. (1986). *Barriers*. Cambridge, Mass.: MIT Press.
- Chomsky, N. (1995). *The Minimalist Program*. Cambridge: MIT Press.
- Chu, W. & Schwartz, B.D. (2005). Another look at ‘verb raising’ in the L2 English of Chinese speakers. In L. Dekydtspotter, R.A. Sprouse & A. Liljestr and (Eds.) *Proceedings from the 7th Generative Approaches to Second Language Conference (GASLA)*. (pp. 68-85) Sommerville, MA: Casadilla proceedings project.
- Cinque, G. (1999) *Adverbs and Functional Heads*. Oxford: Oxford University Press
- Clahsen, H. & Muysken, P. (1986). The availability of universal grammar to adult and child learners – a study of the acquisition of German word order. *Second Language Research*, 2, 93-119.
- Clahsen, H. & Muysken, P. (1989). The UG paradox in L2 acquisition. *Second Language Research*, 5, 1-29.
- Clahsen, H., Meisel, J. & Pieneman, M. (1983). *Deutsch als Zweitsprache. Der Spracherwerb ausl andischer Arbeiter*. [German as a second language. The language acquisition by foreign workers] T ubingen: Gunter Narr.
- Cook, V. (2002). *Portraits of the L2 User*. Clevedon: Multilingual Matters.
- Cook, V. (2003). *Effects of the Second Language on the First*. Clevedon: Multilingual Matters.
- Corder, S.P. (1983). A role of the mother tongue. In S. Gass & L. Selinker (Eds.) *Language Transfer in Language Learning*. (pp. 85-97) Rowley, MA: Newbury House.
- Council of Europe (2001). *Common European Framework of Reference for Languages: Learning, Teaching, Assessment*. Cambridge: Cambridge University Press.
- Croft, W. (1990). *Typology and Universals*. Cambridge: CUP.
- De Angelis, G. (2005a). Multilingualism and non-native language transfer: an identification problem. *International Journal of Multilingualism*, 2, 1–25.
- De Angelis, G. (2005b). Interlanguage transfer of function words. *Language Learning*, 55, 379–414.
- De Angelis, G. (2007). *Third or Additional Language Acquisition*. Clevedon: Multilingual Matters.
- De Angelis, G. & Selinker, L. (2001). Interlanguage transfer and competing linguistic systems in the multilingual mind. In J. Cenoz, B. Hufeisen, & U. Jessner (Eds.) *Cross-linguistic Influence in Third Language Acquisition: Psycholinguistic Perspectives*. (pp. 42–58) Clevedon: Multilingual Matters.
- de Bot, K. (1992). A bilingual production model: Levelt’s speaking model adapted. *Applied Linguistics*, 13, 1–24.
- de Bot, K. (2004). The multilingual lexicon: modelling selection and control. *International Journal of Multilingualism*, 1, 17-32.
- de Bot, Kees (2008). Review article: The imaging of what in the multilingual mind? *Second Language Research*, 24, 111–133.
- de Vriendt, S. (1972). Interferenzen der ersten Fremdsprache beim Erlernen einer zweiten. [Interference from the first foreign language in the acquisition of a second].

- In G. Nickel (Ed.) *The International Symposium in Applied Contrastive Linguistics*. (pp. 43-50) Stuttgart, October 1971. Bielefeld: Cornelsen-Velhagen-Klasing.
- Dehaene, S., Dupoux, E., Mehler, J., Cohen, L., Paulesu, E., Perani, D. van de Moortele, P.F., Lehericy, S. & Le Bihan, D. (1997). Anatomical variability in the cortical representation of first and second language. *NeuroReport*, 8, 3809–15.
- Delfitto, M. & Corver, N. (1997). Feature primitives and the syntax of specificity. Ms. Tilburg University.
- den Besten, H. (1983). On the interaction of root transformations and lexical deletive rules. In W. Abraham (Ed.) *On the Formal Syntax of the West Germanic* (pp. 47-131) Amsterdam: John Benjamins
- den Besten, H. & Edmondson, J.A. (1983). The verbal complex in Continental West Germanic. In W. Abraham (Ed.) *On the Formal Syntax of the Westgermania*. Amsterdam/Philadelphia: Benjamins (Linguistik Aktuell 3), 155–216.
- Dentler, S. (2000). Deutsch und English – das gibt immer Krieg [German and English – there is always a war]. In S. Dentler, B. Hufeisen, and B. Lindemann (Eds.) *Tertiär und Drittsprachen. Projekte und empirische Untersuchungen*. [Tertiary Languages. Projects and empirical research.] (pp. 77–97). Tübingen: Stauffenburg Verlag.
- Dewaele, J.-M. (1998). Lexical inventions: French interlanguage as L2 versus L3. *Applied Linguistics*, 19, 471–490.
- Dewaele, J.-M. (2001). Activation or inhibition? The interaction of L1, L2 and L3 on the language mode continuum. In J. Cenoz, B. Hufeisen & U. Jessner (Eds.) *Cross-linguistic Influence in Third Language Interaction. Psycholinguistic Perspectives*. (pp. 69–89) Clevedon: Multilingual Matters.
- Duffield, N. (1995). *Particles and Projections in Irish Syntax*. Dordrecht: Kluwer.
- duPlessis, J., Solin, D., Travis, L. & White, L. (1987). UG or not UG, that is the question. A reply to Clahsen and Muysken. *Second Language Research*, 3, 56-75.
- Ecke, P. & Hall, C.J. (2000). Lexikalischer Fehler in Deutsch als Drittsprache: Translexikalischer Einfluss auf 3 Ebenen der mentalen Repräsentation. [Lexical errors in German as a third language. Translexical influence in three levels of the mental representation.] *Deutsch als Fremdsprache*, 1, [German as a foreign language] 31–37.
- Eckman, F.R. (1985). The markedness differential hypothesis: theory and application. In B. Wheatly, A. Hastings, F.R. Eckman, L. Bell, G. Krukar & R. Rutkowski (Eds.) *Current approaches to second language acquisition: Proceedings from the 1984 university of Wisconsin-Milwaukee linguistic symposium*. (pp. 3-21) Bloomington, IN: Indiana University linguistic club.
- Einstufungstests für Anfänger- und Fortgeschrittenenkurse: Deutsch als Fremdsprache*. [Placement test for beginners and intermediate courses: German as a foreign language.](1994). München: Verlag für Deutsch.
- Ellis, R. (1994). *The study of Second Language Acquisition*. Oxford: Oxford university press.
- Emonds, J. (1978). The verbal complex V^o-V in French. *Linguistic Inquiry*, 9, 33-54.
- Epstein, S., Flynn, S. & Marthohardjono, G. (1996). Second language acquisition: theoretical and experimental issues in contemporary research. *Brain and Behavioural Sciences*, 19, 677-714.
- Epstein, S., Flynn, S. & Marthohardjono, G. (1998). The strong continuity hypothesis in adult L2 acquisition of functional categories. In S. Flynn, G. Marthohardjono &

- W. O'Neil (Eds.) *The Generative Study of Second Language Acquisition*. (pp. 61-77) Hillsdale Nj: Erlbaum
- Ernst, T. (1994). Chinese adjuncts and phrase structure theory. *Journal of Chinese Linguistics*, 22, 41-71.
- Eubank, L. (1993/1994). On the transfer of parametric values in L2 development. *Language Acquisition*, 3, 183-208.
- Eubank, L. (1994). Optionality and the initial state in L2 development. In T. Hoekstra & B.D. Schwarz (Eds.) *Language Acquisition Studies in Generative Grammar*. (pp. 369-388) Amsterdam: John Benjamins.
- Eubank, L. (1996). Negation in early German-English interlanguage: More valueless features in the L2 initial stage. *Second Language Research*, 12, 73-106.
- Eubank, L. & Grace, S. (1996). Where's the mature language? Where is the native language? In A. Stringfellow, D. Cahana-Amitay, E. Huges and A. Zukowski (Eds.) *BUCLD 20 Proceedings*. (pp. 245-256) Somerville, MA: Cascadilla press
- Eubank, L., Beck, M.-L. & Aboutaj, H. (1997). OI effects and optionality in the interlanguage of a Moroccan-Arabic speaking learner of French. Paper presented at *The American Association of Applied Linguistics*, Orlando.
- Eubank, L., Bischof, J., Huffstuntler, A., Leek, P. & West, C. (1997). 'Tom eats slowly cooked eggs': Thematic-verb raising in L2 knowledge. *Language Acquisition*, 6, 171-199.
- Fabbro, F. (2001). The bilingual brain: Bilingual aphasia. *Brain and Language*, 79, 201-210.
- Fabbro, F. & Paradis, M. (1995). Differential impairments in four multilingual patients with subcortical lesions. In M. Paradis (Ed.) *Aspects of Bilingual Aphasia*. (pp. 139-176). Oxford Pergamon Press.
- Falk, Y. (2002). The Role of the background languages L1 and L2: in third language acquisition: Neither L1 transfer nor no transfer. Talk given at *NOTT, Max Planck Institut für Psycholinguistik*, November 2002.
- Falk, Y. (submitted). The impact of the L2 status factor in the acquisition of German as an L3. A study on adverb placement.
- Falk, Y. & Bardel, C. (2010). The study of the role of the background languages in third language acquisition. The state of the art. *International Review of Applied Linguistics in Language Teaching*, 48, 185-220.
- Falk, Y. & Bardel, C. (in press). Object pronouns in German L3 syntax: evidence for the L2 status factor. *Second Language Research*.
- Fanselow, G. (1990). Scrambling as NP-movement. In G. Grewendorf & W. Sternefeld (Eds.) *Scrambling and Barriers*. (pp. 113-140) Amsterdam: John Benjamins.
- Felser, C., Marinis, T. & Clahsen, H. (2003). Children's processing of ambiguous sentences: a study of relative clause attachment. *Language Acquisition*, 11, 127-163.
- Flege, J.E., Schiruru, C & MacKay, I. (2003). Interaction between the native and the second language phonetic subsystems. *Studies in Second Language Acquisition*, 20, 155-187.
- Flege, J.E., Yeni-Komshian, G.H. & Liu, S. (1999). Age constraints on second-language acquisition. *Journal of Memory and Language*, 41, 78-104.
- Flynn, S. (2009). UG and L3 acquisition: New insights and more questions. In: Y.-k.I. Leung (Ed.) *Third Language Acquisition and Universal Grammar*. (pp. 71-88) Bristol: Multilingual Matters.

- Flynn, S., Foley, C. & Vinnitskaya, I. (2004). The cumulative-enhancement model for language acquisition: Comparing adults' and children's patterns of development in first, second and third language acquisition of relative clauses. *International Journal of Multilingualism*, 1, 3-16.
- Flynn, S., Vinnitskaya, I. & Foley, C. (2008). Complementizer phrase features in child L1 and adult L3 acquisition. In: J.M. Liceras, H. Zobl, & H. Goodluck (Eds.) *The Role of Features in Second Language Acquisition*. (pp. 519–533) New York: Lawrence Erlbaum Associates.
- Franceschini, R., Zappatore, D. & Nitsch, C. (2003). Lexicon in the brain: What neurobiology has to say about languages. In J. Cenoz, B. Hufeisen, & U. Jessner (Eds.) *The Multilingual Lexicon*. (pp. 153–166). Dordrecht: Kluwer.
- Gass, S. (1994). The reliability of second-language grammaticality judgements. In: E. Tarone, S. Gass & A. Cohen (Eds.) *Research Methodology in Second Language Acquisition*. (pp. 303-322) New Jersey: Lawrence Erlbaum Associates.
- Gomez-Tortosa, E., Martin, E.M., Gaviria, M. Charbeland, F. & Ausman, J.I. (1995). Selective deficit of one language in a bilingual patient following surgery in the left perisylvian area. *Brain and Language*, 48, 320–325.
- Grewendorf, G. (1988). *Aspekte der deutschen Syntax: Eine Rektions-Bindungs-Analyse*. [Aspects of the German syntax: a government and binding analysis.] Tübingen: Gunter Narr Verlag.
- Grosjean, F. (1992). Another view of bilingualism. In R. J. Harris (Ed.) *Cognitive Processing in Bilinguals*. (pp. 51–62). Amsterdam: New Holland.
- Grosjean, F. (1999). The bilingual's language modes. In: J. Nicole (Ed.) *One Mind, Two Languages: Bilingual Language Processing*. (pp. 1-25) Oxford: Blackwell.
- Haberzettl, S. (2000). Der Erwerb der Verbstellung in der Zweitsprache Deutsch durch Kinder mit typologisch verschiedenen Muttersprachen. Eine Auseinandersetzung mit Theorien zum Syntaxerwerb anhand von vier Fallstudien [The acquisition of verb placement in L2 German by children with typologically different mother tongues. A discussion about theories on the acquisition of syntax on the basis of four case studies]. Doctoral Dissertation, Potsdam University, Potsdam, Germany.
- Haegeman, L. & Guéron, J. (1999). *English Grammar. A Generative Perspective*. Oxford: Blackwell.
- Haider, H. (1993). *Deutsche Syntax: Generative*. [Generative German syntax] Tübingen: Gunter Narr Verlag
- Haider, H. & Rosengren, I. (1998). Scrambling. *Sprache und Pragmatic*, 49 [Language and pragmatics] Lund.
- Håkansson, G., Pienemann, M. & Sayheli, S. (2002). Transfer and typological proximity in the context of second language processing. *Second Language Research*, 18, 250-273.
- Hammarberg, B. (2001). Roles of L1 and L2 in L3 production and acquisition. In J. Cenoz, B. Hufeisen & U. Jessner (Eds.) *Cross-linguistic Influence in Third Language Acquisition: Psycholinguistic Perspectives*. (pp. 21-41) Clevedon: Multilingual Matters.
- Hammarberg, B. (2010). The languages of the multilingual: Some conceptual and terminological issues. *International Review of Applied Linguistics in Language Teaching*, 48, 91-104.
- Hammarberg, B. & Hammarberg, B. (2009). Re-setting the basis of articulation in the acquisition of new languages: A third language case study. In B. Hammarberg (Ed.) *Processes in Third Language Acquisition*. (pp. 74–84). Edinburgh: Edinburgh university

- press. Originally 2005 in B. Hufeisen & R.J. Fouser (Eds.) *Introductory Readings in L3*. (pp. 11–18) Tübingen: Stauffenburg.
- Hammarberg, B. & Williams, S. (2009). A study of third language acquisition. In B. Hammarberg (Ed.) *Processes in Third Language Acquisition*. (pp. 17–27). Edinburgh: Edinburgh university press. Originally 1993 in Problem, process, product in language learning, Papers from the Stockholm-Åbo Conference, 21-22 Oct 1992, B. Hammarberg (Ed.), 60–70. Stockholm University: Department of Linguistics.
- Hawkins, R. (2001). *Second Language Syntax. A Generative Introduction*. Oxford: Blackwell.
- Hawkins, R. & Chan, C. (1997). The partial availability of universal grammar in second language acquisition: the ‘failed functional features hypothesis’. *Second Language Research*, 13, 187-226.
- Hawkins, R. & Hattori, H. (2006). Interpretation of English multiple wh-questions by Japanese speakers: a missing uninterpretable feature account. *Second Language Research*, 22, 269-301.
- Hawkins, R., Al-Eid, S., Almahboob, I., Athanasopoulos, P., Chaengchenkit, R., Hu, J., Rezai, M., Jaensch, C., Jeon, Y., Jang, A., Leung, Y.-k.I., Matsunaga, K., Ortega, M., Sarko, G., Snape, N. & Velasco-Zárate, K. (2006). Accounting for English article interpretation by L2 speakers. In S. Foster-Cohen, M. Medved Krajnovic, & J. Mihaljević Djigunović (Eds.) *EUROSLA Yearbook 6*. (pp. 7-25) Amsterdam: John Benjamins.
- Hawkins, R., Towell, R. & Bazergui, N. (1993). Universal grammar and the acquisition of French verb movement by native speakers of English. *Second Language Research*, 9, 189-233
- Heine, L. (2001). Zum Einfluss vorher erworbener Sprachen auf das aktuelle Sprachenlernen. Eine empirische Untersuchung am Beispiel des Schwedischen als neu zu lernender Sprache. [About the influence from earlier acquired languages on current language learning. An empirical study exemplified by Swedish as a new language]. Master thesis, University of Hamburg.
- Heywood, K. (2000). Reflections on being a beginner again. *Language Learning Journal*, 22, 63–66.
- Hohenstein, J., Eisenberg, A. & Naigles, L. (2006). Is he floating a cross or crossing afloat. Cross-linguistic of L1 and L2 in Spanish-English bilingual adults. *Bilingualism: Language and cognition*, 9, 249-261.
- Holmberg, A. & Platzack, C. (1995). *The Role of Inflection in Scandinavian Syntax*. New York/Oxford: Oxford University Press.
- Hombitzer, E. (1971). Das nebeneinander von Englisch und Französisch als Problem des Fremdsprachenunterrichts. [The problem with English and French side by side in the foreign language teaching.] In H. Christ (Ed.) *Probleme der Korrektur und Bewertung schriftlicher Arbeiten in Fremdsprachenunterricht*. [Problems with correction and assessment of writing tasks in foreign language teaching.] (pp. 21-34) Berlin: Cornelsen.
- Hufeisen, B. (1998). L3: Stand der Forschung: Was bleibt zu tun? [L3: Status of the current research: what remains to be done?] In B. Hufeisen & B. Lindemann (Eds.) *Tertiärsprachen. Theorien, Modelle, Methoden*. [Tertiary languages. Theories, models, methods.] (pp. 169–184) Tübingen: Stauffenburg Verlag.
- Hufeisen, B. & Marx, N. (2007). How can DaF/E and EuroComGerm contribute to the concept of receptive multilingualism? Theoretical and practical considerations.

- In ten Thijs, J. D. and Zeevaert, L. (Eds.) *Receptive Multilingualism*. (pp. 307-322) Amsterdam: John Benjamins.
- Hyltenstam, K. (1977). Implicational patterns in interlanguage syntax variation. *Language Learning*, 27, 383-410.
- Hyltenstam, K. (1978). Variation in interlanguage syntax. *Working Papers 18*. Lund: Department of Linguistics, Lund University.
- Illes, J., Francis, W.S., Desmond, J.E., Gabrieli, J.D.E., Glover, G.H., Poldrack, R., Lee, C.J. & Wagner, A.D. (1999). Convergent cortical representation of semantic processing in bilinguals. *Brain and Language*, 70, 347–363.
- Iverson, M. (2010). Informing the age-of-acquisition debate: L3 as a litmus test. *International Review of Applied Linguistics in Language Teaching*, 48, 221-244.
- Jarvis, S. (1998). *Conceptual transfer in the interlingual lexicon*. Bloomington, Indiana University Linguistic Club.
- Jarvis, S. (2000). Methodological rigor in the study of transfer: Identifying L1 influence in the interlanguage lexicon. *Language Learning*, 50, 245-309.
- Jarvis, S. & Pavlevko, A. (2008). *Crosslinguistic Influence in Language and Cognition*. New York: Routledge.
- Jessner, U. (2006). *Linguistic Awareness in Multilinguals. English as a Third Language*. Edinburgh: Edinburgh University Press.
- Johnson, J.S., Shenkman, K.D., Newport, E.L. & Medin, D.L. (1996). Indeterminacy in the grammar of adult language learners. *Journal of Memory and Language*, 35, 335-352.
- Jones, M.A. (1995). *Foundations of French Syntax*. Cambridge: Cambridge university press.
- Kayne, R. (1991). Romance clitics, verb movement, and PRO. *Linguistic Inquiry*, 22, 617–86.
- Kayne, R. (1994). *The Antisymmetry of Syntax*. Cambridge: MIT Press
- Kellerman, E. (1983). Now you see it, now you don't. In S. Gass and L. Selinker (Eds.) *Language Transfer in Language Learning*. (pp. 112-134) Rowley, MA: Newbury House.
- Kim, K.H.S, Relkin, N.R., Lee, K-M. & Hirsch, J. (1997). Distinct cortical areas associated with native and second languages. *Nature*, 388, 171–74.
- Kim, K.H.S., Hirsch, J., Relkin, N.R., De la Paz, R. & Lee, K.-M. (1996). Localization of cortical areas activated by native and second languages with functional magnetic resonance imaging (fMRI) *Proceedings of the International Society for Magnetic Resonance Imaging*, 1, 283.
- Kiss, K. É. (2002). *The Syntax of Hungarian*. Cambridge: Cambridge University Press.
- Klein Gunnewiek, L. (2000). *Sequenzen und Konsequenzen. Zur Entwicklung niederländischer Lerner im Deutschen als Fremdsprache*. [Sequences and consequences. About the development in German as a foreign language in Dutch native speakers.] Amsterdam: Rodopi.
- Klein, D., Milner, B., Zatorre, R.J. & Meyer, E. (1994). Left putaminal activation when speaking a second language: Evidence from PET. *NeuroReport*, 5, 2295–2297.
- Klein, D., Milner, B., Zatorre, R.J. Zhao, V. & Nikelski, J. (1999). Cerebral organization of bilinguals: A PET study of Chinese-English verb generation. *NeuroReport*, 10, 2841–2846.
- Klein, D., Milner, B., Zatorre, R.J., Meyer, E. & Evans, A. C. (1995). The neural substrates underlying word generation: A bilingual functional-imaging study. *Proceedings of the National Academy of Sciences USA*, 92, 2899–2903.

- Klein, E. (1995). Second versus third language acquisition: Is there a difference? *Language Learning*, 45, 419–465.
- Klein, W. & Perdue, C. (1992). *Utterance Structure. Developing Grammars Again*. Amsterdam: John Benjamins.
- Klein, W. & Perdue, C. (1997). The basic variety (or: Couldn't natural languages be much simpler?). *Second Language Research*, 13, 301-347.
- Lado, R. (1957). *Linguistic Across Cultures*. Ann Arbor, MI: University of Michigan Press.
- Leung, Y.-k. I. (2002). L2 vs. L3 initial state: Evidence from the acquisition of French DPs by Vietnamese monolinguals and Cantonese-English bilinguals. *Proceedings of the Second International Conference on Third Language Acquisition and Trilingualism*. Ljouwert/Leuwarden: Fryske Akademy, 13-15 September 2001: CD-ROM.
- Leung, Y.-k. I. (2003). Failed features vs. full transfer full access in the acquisition of third language: Evidence from tense and agreement. In J.M. Liceras, H. Zobl, & H. Goodluck (Eds.) *Proceedings of the 6th Generative Approaches to Second Language Acquisition Conference GASLA 2002: L2 Links*. (pp. 199-207) Somerville, MA: Cascadilla Proceedings Project.
- Leung, Y.-k. I. (2005a). L2 vs. L3 initial state: A comparative study of the acquisition of French DPs by Vietnamese monolinguals and Cantonese-English bilinguals. *Bilingualism: Language and Cognition*, 8, 39-61.
- Leung, Y.-k. I. (2005b). Second vs. third language acquisition of tense and agreement in French by Vietnamese monolinguals and Cantonese-English bilinguals. J. Cohen, K. MacAlister, K. Rolstad & J. MacSwan (Eds.) *ISB4: Proceedings of the 4th International Symposium on Bilingualism*. (pp. 1344-1352) Somerville, MA: Cascadilla Press, CD-ROM.
- Leung, Y.-k. I. (2006). Full transfer vs. partial transfer in L2 and L3 acquisition. In R. Slabakova, S.A. Montrul & P. Prévost (Eds.) *Inquires in Linguistic Development. In Honor of Lydia White*. (pp. 157-188) Amsterdam: John Benjamins.
- Leung, Y.-k.I. (2007). Third language acquisition: Why it is interesting to generative linguists. *Second Language Research*, 23, 95–114.
- Leung, Y.-k.I. (2009). *Third Language Acquisition and Universal Grammar*. (ed.) Bristol: Multilingual Matters.
- Levelt, W. J. M. (1989). *Speaking. From Intention to Articulation*. Cambridge: MIT Press.
- Lindemann, B. (1998). L2-L3 und ihre zwischensprachliche Interaktion. Probleme und Herausforderungen in bezug auf Untersuchungsdesigns. [L2-L3 and their in-between interaction. Problems and challenges with respect to research design.] In B. Hufeisen & B. Lindemann (Eds.) *Tertiärsprachen. Theorien, Modelle, Methoden*. [Tertiary languages. Theories, models, methods.] (pp. 159-168). Tübingen: Stauffenburg Verlag.
- Lindqvist, C. (2006). *L'influence Translinguistique dans l'Interlangue Française. Étude de la Production Orale d'Apprenants Plurilingues*. [Cross-linguistic influence in French interlanguage. A study of the oral production of multilingual learners.] Doctoral dissertation, Stockholm University.
- Lindqvist, C. (2009). The use of the L1 and the L2 in French L3: examining cross-linguistic lexemes in multilingual learners' oral production. *International Journal of Multilingualism*, 6, 281–297.

- Lindqvist, C. (2010). Lexical cross-linguistic influences in advanced learners' French L3 oral production. *International Review of Applied Linguistics in Language Teaching*, 48, 131-158.
- Llama, R., Cardoso, W. & Collins, L. (2010). The influence of language distance and language status on the acquisition of L3 phonology. *International Journal of Multilingualism*, 7, 39–57.
- MacWhinney, B. (2000). *The CHILDES project: Tools for analyzing talk*. Third Edition. Mahwah, NJ: Lawrence Erlbaum Associates.
- Mandell, P.B. (1999). On the reliability of grammaticality judgement tests in second language acquisition research. *Second Language Research*, 15, 101–9.
- McCloskey, J. (1994). On the scope of verb movement in Irish. *Natural Language and Linguistic Theory*, 14, 47-104.
- Meisel, J. (1983). Transfer as a second language strategy. *Language and Communication*, 3, 11–46.
- Meisel, J. (1997). The acquisition of the syntax of negation in French and German: contrasting first and second language development. *Second Language Research*, 13, 227-263.
- Montgomery, D. C. (1991). *Design and Analysis of Experiments* (3 ed.). New York: John Wiley & Sons.
- Montrul, S., Foot, R. & Perpiñán, S. (2008). Knowledge of Wh-movement in Spanish L2 learners and heritage speakers. J. Bruhn de Garavito & E. Valenzuela (Eds.) *Selected Proceedings of the 10th Hispanic Linguistic Symposium*. (pp. 93-106) Somerville, MA: Cascadilla Proceedings Project.
- Munnich, E., Flynn, S. & Marthohardjono, G. (1994). Elicited imitation and grammaticality tasks: What they measure and how they relate to each other. In E. Tarone, S. Gass & A. Cohen (Eds.) *Research Methodology in Second Language Acquisition*. (pp. 227–43). New Jersey: Lawrence Erlbaum Associates.
- Na Ranong, S. & Leung Y.-k.I. (2009). Null objects in L1 Thai-L2 English-L3 Chinese: An empiricist take on a theoretical problem. In Leung, Y.-k.I. (Ed.) *Third Language Acquisition and Universal Grammar*. (pp. 162-191) Clevedon: Multilingual Matters.
- Neeleman, A. & Weerman, F. (1997). L1 and L2 word order acquisition. *Language Acquisition*, 6, 125–70.
- Odlin, T. (1989). *Language Transfer. Cross-linguistic Influence in Language Learning*. Cambridge: CUP.
- Odlin, T. (2003). Crosslinguistic influence. In C. Doughty & M. Long (Eds.) *The Handbook of Second Language Acquisition*. (pp. 436-486), Oxford: Blackwell.
- Odlin, T. & Jarvis, S. (2004). Same source, different outcomes: a study of Swedish influence on the acquisition of English in Finland. *International Journal of Multilingualism*, 1, 123–140.
- Pallotti, G. (2007). An operational definition of the emergence criterion. *Applied Linguistics*, 28, 361–382.
- Paradis, M. (2004). *A Neurolinguistic Theory of Bilingualism*. Amsterdam: John Benjamins.
- Paradis, M. (2009). *Declaratives and Procedural Determinants of Second Languages*. Amsterdam: John Benjamins.
- Paradis, M. & Goldblum, M.-C. (1989). Selected crossed aphasia in a trilingual aphasic patient followed by reciprocal antagonism. *Brain and Language*, 36, 62–75.

- Perani, D., Dehaene, S., Grassi, F., Cohen, L., Cappa, S.F., Dupoux, E., Fazio, F. & Mehler, J. (1996). Brain processing of native and foreign languages. *NeuroReport*, 7, 2439–2444.
- Perani, D., Paulesu, E., Galle, S.N., Dupoux, E., Dehaene, S., Bettinardi, V., Cappa, S.F., Fazio, F. & Mehler, J. (1998). The bilingual brain: proficiency and age of acquisition of the second language. *Brain*, 121, 1841-1852.
- Pienemann, M. (1984) Psychological constraints on the teachability of languages. *Studies in Second Language Acquisition*, 6, 186-214.
- Pienemann, M. (1998). *Language Processing and Second Language Development: Processability Theory*. Amsterdam: John Benjamins.
- Pienemann, M. and Håkansson, G. (1999). A unified approach towards the development of Swedish as L2: A processability account. *Studies in Second Language Acquisition*, 21, 383-420.
- Pienemann, M., Di Biase, B., Kawaguchi, S. & Håkansson, G. (2005). Processing constraints on L1 transfer. In: J.F. Kroll & A.M.B. DeGroot (Eds.) *Handbook of Bilingualism: Psycholinguistic Approaches*. (pp. 128-153) New York: Oxford University Press.
- Pillai, J.J., Araque, J.M., Allison, J.D., Sethuraman, S., Loring, D.W., Thiruvaiyaru, D., Ison, C.B., Balan, A., & Lavin, T. (2003). Functional MRI study of semantic and phonological language processing in bilingual subjects: preliminary findings. *NeuroImage*, 19, 565–576.
- Platzack, C. (1996). The initial hypothesis of syntax: a minimalist perspective on language acquisition and attrition. In H. Clahsen (Ed.) *Generative Perspectives on Language Acquisition: Empirical Findings, Theoretical Considerations, Crosslinguistic Comparisons*. (pp. 369-414). Amsterdam: John Benjamins.
- Platzack, C. (1998). *Svenskans Inre Grammatik – Det Minimalistiska Programmet. En Introduktion till Modern Generativ Grammatik*. [The inner grammar of Swedish – the minimalist program. An introduction to modern generative grammar.] Lund: Studentlitteratur.
- Pollock, J.-Y. (1989). Verb movement, universal grammar and the structure of IP. *Linguistic Inquiry*, 20, 365-424.
- Ringbom, H. (1987). *The Role of the First Language in Foreign Language Learning*. Clevedon: Multilingual Matters.
- Ringbom, H. (2001). Lexical transfer in L3 production. In J. Cenoz, B. Hufeisen, & U. Jessner (Eds.) *Cross-linguistic Influence in Third Language Acquisition: Psycholinguistic Perspectives*. (pp. 59–68). Clevedon: Multilingual Matters.
- Ringbom, H. (2003). If you know Finnish as L2, there will be no major problem learning Swahili. Paper presented at the *Third International Conference on Trilingualism and Third Language Acquisition*, Tralee, Ireland, 4–6 September.
- Ringbom, H. (2007). Cross-linguistic Similarity in Foreign Language Learning. Clevedon: Multilingual Matters.
- Rivers, W.M. (1979). Learning a sixth language: an adult learner's daily diary. *The Canadian Modern Language Review*, 35, 67–82.
- Roberts, I. (2001). Head Movement In: M. Baltin & C. Collins (Eds.) *The Handbook of Contemporary Syntactic Theory*. (pp. 113-147) Oxford: Blackwell.

- Rothman, J. (2010). On the typological economy of syntactic transfer: word order and high/low attachment preference in relative clause interpretations in L3 Brazilian Portuguese. *International Review of Applied Linguistics in Language Teaching*, 48, 245-275.
- Rothman, J. (in press). L3 syntactic transfer selectivity and typological determinacy: the typological primacy model. *Second Language Research*.
- Rothman, J. & Cabrelli-Amaro, J. (2010). What variables condition syntactic transfer? A look at the L3 initial state. *Second Language Research*, 26, 189-218.
- Sabourin, L. (2009). Neuroimaging and research into second language acquisition. *Second Language Research*, 25, 5-11.
- SAS Institute Inc (1999-2001). *The SAS system for Windows*. Release 8.02. Cary, NC, SAS Institute Inc.
- Schachter, J. (1989). A new look at an old classic. *Second Language Research*, 5, 30-42.
- Schmidt, R.W. & Frota, S. (1986). Developing basic conversational ability in a second language. A case study of an adult learner of Portuguese. In R.R. Day (Ed.) *Talking to Learn. Conversation in Second Language Acquisition*. (pp. 237-326). Rowley: Newbury House.
- Schmitz, K. & Müller, N. (2008). Strong and clitic pronouns in monolingual and bilingual acquisition of French and Italian. *Bilingualism: Language and Cognition*, 11, 19-41.
- Schütze, C.T. (1996). *The Empirical Base of Linguistics: Grammaticality Judgements and Linguistic Methodology*. Chicago: The University of Chicago press.
- Schwartz, B.D. & Sprouse, R. (1994). Word order and nominative case in non-native language acquisition: a longitudinal study of (L1 Turkish) German interlanguage. In T. Hoekstra & B.D. Schwarz (Eds.) *Language Acquisition Studies in Generative Grammar*. (pp. 317-368) Amsterdam: John Benjamins.
- Schwartz, B.D. & Sprouse, R. (1996). L2 cognitive states and the Full Transfer/Full Access model. *Second Language Research*, 12, 40-72.
- Schwartz, B.D. & Sprouse, R. (2000). When syntactic theories evolve: Consequences for L2 acquisition research. In J. Archibald (Ed.) *Second Language Acquisition and Linguistic Theory*. (pp. 156-186) Oxford: Blackwell.
- Schwarz, B.D. & Sprouse, R. (2007). Linear sequencing strategies or UG-defined hierarchical structures in L2 acquisition. A reply to Meisel. In S. Karimi, V. Samilian, & W.K. Wilkin (Eds.) *Phrasal and Clausal Architecture: Syntactic Derivation and Interpretation. In Honor of Joseph E. Emonds*. (pp. 295-318) Amsterdam: John Benjamins.
- Sharwood Smith, M. & Kellerman, E. (1986). Crosslinguistic influence in second language acquisition: An introduction. In E. Kellerman & M. Sharwood Smith (Eds.) *Crosslinguistic Influence in Second Language Acquisition*. (pp. 1-9). New York: Pergamon Press.
- Singleton, D. (1999). *Exploring the Second Language Mental Lexicon*. Cambridge: Cambridge University Press.
- Sjögren, Y. (2000). Multilingual conversations in Swedish. About crosslinguistic influence in third language acquisition. BA-thesis in linguistics, Lund University.
- Sjögren, Y. (2002). About preference for V3 instead of V2 in L3: A study of word order in third language acquisition. *Proceedings of the Second International Conference on Third Language Acquisition and Trilingualism*. Ljouwert/Leeuwarden: Fryske Akademy, 13-15 September 2001: CD-ROM.

- Smith, N. & Tsimpli, I.-M. (1995). *The Mind of a Savant: Language Learning and Modularity*. Oxford: Blackwell.
- Stechow, A. & Sternefeld, W. (1988). *Bausteine syntaktisches Wissens. Ein Lehrbuch der generativen Grammatik*. [Foundations of syntactic knowledge. A handbook of generative grammar]. Opladen: Westdeutscher Verlag.
- Stedje, A. (1977). Tredjespråksinterferens i fritt tal – en jämförande studie. [L3 interference in spontaneous speech – a contrastive study.] In R. Palmberg & H. Ringbom (Eds.) *Papers from the conference on contrastive linguistics and error analysis*. Stockholm and Åbo, February 7-9, 1977. (pp. 141-158) Publication of the research institute of the Åbo academy foundation, 19.
- Stedje, A. & Biedermann, E. (1975). Interferenzerscheinungen im Deutsch einiger finnischen Studenten beim Studium in Schweden. [Interference phenomena in some Finnish students' German when studying in Sweden.] MS, Dept. of Germanic languages, University of Stockholm.
- Thomas, J. (1985). The role played by prior linguistic experience in second and third language learning. In R.J. Hall (Ed) *The Eleventh Linguistic Association of Canada and United States Forum 1984*. (pp. 510-518) Columbia: Hornbeam press.
- Thomas, J. (1988). The role played by metalinguistic awareness in second and third language acquisition. *Journal of Multilingual and Multicultural Development*, 9, 235-246.
- Towell, R. & Hawkins, R. (1994). *Approaches to Second Language Acquisition*. Amsterdam: John Benjamins.
- Trahey, M. (1996). Positive evidence in second language acquisition: some long-term effects. *Second Language Research*, 12, 111-139.
- Trahey, M. & White, L. (1993). Positive evidence and pre-emption in the second language classroom. *Studies in Second Language Acquisition*, 15, 181-204.
- Travis, L. (1994). Parameters of phrase structure and verb-second phenomena. In R. Freidin (Ed.) *Principles and Parameters in Comparative Grammar*. (pp. 339-364) Cambridge Mass: MIT.
- Tremblay, A. (2005). Theoretical and methodological perspectives on the use of grammaticality judgement tasks in linguistic theory. *Second Language Studies*, 24, 129-167.
- Turano, G. (2000). On Clitics and Negation in Albanian. *Rivista di Grammatica Generativa*, 25, 81-117.
- Ullman, M. (2001). The neural basis of lexicon and grammar in first and second language: the declarative/procedural model. *Bilingualism: Language and Cognition*, 4, 105-122.
- Ullman, M. (2005). A cognitive neuroscience perspective on second language acquisition: declarative/procedural model. In C. Sanz, (Ed.) *Mind and Context in Adult Second Language Acquisition. Methods, Theory, and Practice*. (pp. 141-78) Washington, D.C: Georgetown University Press.
- Ullman, M. (2009). Declarative and procedural memory in first and second language. Paper presented at *Georgetown University Round Table*, 13-15 March.
- Vainikka, A. & Young-Scholten, M. (1994). Direct access to X'-Theory: Evidence from Korean and Turkish adults learning German. In T. Hoekstra and B.D. Schwartz (Eds.) *Language Acquisition Studies in Generative Grammar* (pp.265-316) Amsterdam: John Benjamins.

- Vainikka, A. & Young-Scholten, M. (1996). Gradual development of L2 phrase structure. *Second Language Research*, 12, 7-39.
- Vainikka, A. & Young-Scholten, M. (2006). The roots of syntax and how they grow. Organic grammar, the basic variety and processability theory. In S. Unsworth, T. Parodi, A. Sorace & M. Young-Scholten (Eds.) *Paths of Development in L1 and L2 Acquisition*. In Honor of Bonnie D. Schwartz (pp.77-105) Amsterdam: John Benjamins.
- Vikner, S. (1995). *Verb Movement and Expletive Subjects in the Germanic Languages*. Oxford: Oxford University Press.
- Vildomec, V. (1963). *Multilingualism*. Leyden A.W.: Sythoff.
- Vinnitskaya, I, Flynn, S. & Foley, C. (2002). Role of prior language knowledge in the acquisition of a third language. *Proceedings of the Second International Conference on Third Language Acquisition and Trilingualism*. Ljouwert/Leeuwarden: Fryske Akademy, 13-15 September 2001: CD-ROM.
- Vogel, T. (1992). "English und Deutsch gibt es immer Krieg", Sprachverarbeitungsprozesse beim Erwerb des Deutschen als Drittsprache. ["English and German there is always war" Language processing in the acquisition of German as an L3.]. *Zielsprache Deutsch*, 23 [Target language German] 95–99.
- White, L. (1989a). The adjacency condition on case assignment: do L2 learners observe the subset principle? In S. Gass & J. Schachter (Eds.) *Linguistic Perspectives on Second Language Acquisition*. (pp. 134-158) Cambridge: Cambridge University Press.
- White, L. (1989b). *Universal Grammar and Second Language Acquisition*. Philadelphia: John Benjamins.
- White, L. (1990/1991). The verb-movement parameter in second language acquisition. *Language Acquisition*, 1, 337-360.
- White, L. (1991). Adverb placement in second language acquisition: some effects of negative evidence in the classroom. *Second Language Research*, 7, 133-161.
- White, L. (1992). Long and short verb movement in second language acquisition. *Canadian Journal of Linguistics*, 37, 337-386.
- White, L. (1996). Clitics in L2 French. In H. Clahsen (Ed.) *Generative Perspectives on Language Acquisition*. (pp. 335-368) Amsterdam: John Benjamins.
- White, L. (2003). *Second Language Acquisition and Universal Grammar*. Cambridge: Cambridge university press.
- Williams, S. & Hammarberg, B. (1998). Language switches in L3 production: Implications of a polyglot speaking model. *Applied Linguistics*, 19, 295-333.
- Wood Bowden, H., Sanz, C. and Stafford, C. A. (2005). Individual differences: Age, sex, working memory, and prior knowledge. In C. Sanz, (Ed.) *Mind and Context in Adult Second Language Acquisition. Methods, Theory, and Practice*. (pp. 105-140). Washington, D.C: Georgetown University Press.
- Wrembel, M., Gut, U. & Mehlhorn, G. (2010). Phonetics/Phonology in third language acquisition. [Special issue]. (Eds.) *International Journal of Multilingualism*, 7.
- Yuan, B. (2001). The status of thematic verbs in second language acquisition of Chinese: against inevitability of thematic-verb raising in second language acquisition. *Second Language Research*, 17, 248-272.
- Zanuttini, R. (1997). *Negation and Clausal Structure. A Comparative Study of Romance Languages*. New York/Oxford: Oxford University Press.
- Zanuttini, R. (2001). Sentential negation. In M. Baltin & C. Collins (Eds.) *The Handbook of Contemporary Syntactic Theory*. (pp. 511-535) Oxford: Blackwell.

- Zifonun, G., Hoffmann, L. & Strecker, B. (1997). *Grammatik der deutschen Sprache*. [Grammar of the German language]. Berlin: Mouton de Gruyter.
- Zobl, H. (1992). Prior linguistic knowledge and the conservation of the learning procedure: grammaticality judgements of unilingual and multilingual learners. In S. Gass & L. Selinker (Eds.) *Language Transfer in Language Learning*. (pp. 176–196). Amsterdam: John Benjamins.
- Zwart, J.-W. (1993). *Dutch syntax. A minimalist approach*. Groningen: Groningen Dissertations in Linguistics, Dept. of General Linguistics.
- Zwart, J.-W. (1997). *The Morphosyntax of Verb Movement: A Minimalist Approach to the Syntax of Dutch*. Dordrecht: Kluwer.

Curriculum vitae

Ylva Falk was born in 1968 in Stockholm, Sweden. After having received a B.A. in Literature and German from Stockholm University she taught Swedish and German in secondary school. She continued teaching, but changed to the second language classroom, where she taught Swedish in Stockholm, Brussels and Malmö. The experiences from the classroom led her back to the university and she started studying general linguistics at Lund University, Sweden. When she received her M.A. she applied for a Ph.D. position in the Netherlands. In 2000 she started her Ph.D. project at Tilburg University and in 2001 she moved to the Department of Applied Linguistics at Radboud University, Nijmegen, where she received a scholarship from Max Plank Institute. She now lives in Sweden where she teaches at Folkuniversitetet and at the Department of Education in Languages and Language Development at Stockholm University.