

Lund University – Dept. of Linguistics

Transfer and Syntax?

**– A study on the acquisition of German word order by Swedish
native speakers**

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Abstract

In the field of second language acquisition (SLA) it is an important question, which role the native language assumes in the acquisition of another language. Studies have shown that there exists a native language influence on a phonological and lexical level. The situation in syntax is however different. Here a native language influence (transfer) is not self-evident. Researchers have been taking various stances towards this question. Full Transfer/ Full Access Model (Schwartz & Sprouse 1994/96) claims that L1 transfer plays a central role in the SLA, since the L1 grammar is supposed to be the initial state of the L2 grammar. Processability Theory (Pienemann 1998; Pienemann & Håkansson 1999) on the other hand, claims that since the acquisition of syntax is constrained by cognitive processing procedures, L1 transfer does not change the SLA essentially. Instead the L2 is acquired according to an implicational order irrespective of the L1. The aim of this paper is to shed light on these opposing views concerning the role of transfer in syntax. To this end hypotheses derived from both theories will be tested on oral data of twenty German L2 learners with Swedish as their L1. Both languages are V2 languages. This is an especially promising combination to test transfer phenomena, since the V2 property can be hypothesised to transfer. It will be shown that the data of the present research supported unanimously Processability Theory whilst the prediction of the Full Transfer/ Full Access Model could not be confirmed. It will be thus argued that transfer in syntax plays only a minor role in the acquisition of a second language. The fact that both languages displayed the same syntactical property did not lead to an L1 transfer. Instead the learners followed the implicational order predicted by Processability Theory.

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1. Introduction

1.1 Is there transfer in syntax?

Everyday observation tells us that the native language has an influence on the acquisition of a foreign language. This is often obvious from the typical foreign accent a learner has, for example the accent resulting from the Japanese' proverbial difficulty to pronounce [r], or by other mistakes, which allegedly origin from the native language. An example for how generally accepted and expected the influence of the native language is, is a banter coming from Michael Curtiz' movie *Casablanca*. A German refugee eagerly learning English is asked for the time. *Ten watch* is his happy reply - an all too German way to answer, thinking of the German phrase *Zehn Uhr*. This pleasantry, only funny as long as the mistake is accepted as a bizarre, genuinely German one, presupposes the audience to expect influences of the native language on the foreign language. It shows thus how familiar people are with such a phenomenon.

This phenomenon, then, when a learner uses properties from his native or *first* language (L1) in his foreign or *second* language (L2) is generally referred to as *transfer*. To put it a little more precisely: transfer means cases in which properties from the mental grammar of the L1 are carried over into the mental grammar learners construct for the L2 (Towell & Hawkins 1994:5). *Mental grammar* means here the (generally not conscious) linguistic knowledge represented in the speaker's mind¹.

Learners and teachers are often firmly convinced that the native language eases the acquisition process if the languages in question are similar (*positive transfer*), as well as they often frustratedly report of annoying vestiges of their native language in areas where the languages differ and where its souvenirs lead to errors in the L2, seen from a target language perspective (*negative transfer* or *interference*)².

¹ Dealing with language influence, one also comes across the term: *cross-linguistic-influence* (CLI) (Sharwood Smith & Kellerman 1986). It is a cover term for phenomena evidenced in language contact situations, as for instance language loss, avoiding, borrowing etc. Transfer is consequently one special form of CLI. Even though CLI has the advantage of being theory-neutral (transfer by contrast evolved historically from behaviourism, cf. chap.1.2), in this study only the term *transfer* will be used, as it is dealt with this special form of mental interaction of language systems only.

² Sometimes a distinction is made between language *learning*, which happens consciously or is instructed, and language *acquisition*, which occurs unconsciously or "naturally" without instruction. Several studies however (cf. Lightbown & Spada 1993: 26f; Pienemann 1998:122) suggest that even though instruction might speed up the acquisition process, it does not alter it in a fundamental way. For this reason both terms, acquisition and learning, are used synonymously in this paper.

But how important is the influence of the native language? Can it really help or interfere? Do properties from all components of the mental grammar, i.e. from all *linguistic levels*, transfer or only some of them sometimes? To which extent do they transfer, if they transfer? Does it happen to all or just some of us? How does it happen if it happens? Are we always/sometimes/ never conscious about it and finally, why does it happen at all? These are only some of the questions concerning transfer, which haunt researchers in the field of second language acquisition.

Let us pick one of them for the moment: Do properties from all linguistic levels transfer, i.e. from phonetics and phonology (pronunciation), morphology (the structure of words), syntax (the construction of phrases and sentences), the lexicon (the vocabulary in the mental dictionary) and from discourse (the communicative use that sentences are put to)? Thinking of the foreign accent mentioned before, it seems to be obvious that transfer exists at least in the phonological realm. To have a foreign accent means linguistically expressed nothing else than that the pronunciation reflects the phonological system of the native language. In the literature of second language acquisition (SLA) it is hence generally agreed on that there is transfer on a phonological level (e.g. Ioup 1984; Hammarberg & Williams 1993; James 1996). The same applies for transfer on a lexical level (e.g. Kellerman 1986; Appel 1996). The research questions usually go beyond the question of existence dealing with more precise problems. Different phenomena of lexical transfer, for instance, have been specified according to the degree of their adaptation to the *target language* (TL) norm or to the extent of their conscious use (e.g. Faerch & Kaspar 1986).

The picture is however not that clear coming to transfer in syntax. Here the question of existence is not yet settled. It has been much debated if and doubted that there is (significant) transfer in syntax. While for example Towell and Hawkins (1994:7) allege that there is transfer on all linguistic levels, i.e. also on syntax, many researchers oppose this view (e.g. Faerch & Kaspar 1986; Vogel 1992).

One reason for this disagreement might be that the transfer of syntactical properties is simply not as conspicuous as transfer of properties from other linguistic levels. Ioup (1984) showed, for example, that language teachers were no longer able to differentiate learners according to their native language background as soon as the phonological clues were eliminated while the syntactical errors were preserved. (Her test design implied a native speaker of English reading out speech passages elicited from learners of English). Apparently, transfer in syntax, if existing, is a more evasive phenomenon than other phenomena of transfer.

To split the phenomena of transfer in subphenomena according to their linguistic level is not unusual. Researchers nowadays suggest in general to adapt a modular approach to transfer. Not a single general theory is expected to explain and predict all different incidences of transfer, but the mechanisms underlying transfer are assumed to vary according to the linguistic level under investigation (Sharwood Smith & Kellerman 1986). In line with this idea, in this paper, we will concentrate on transfer in syntax only, trying to further elucidate this area.

Is there then transfer in syntax? As already suggested, various answers have been given to this question. The different theories and models on transfer in syntax can be arranged according to the importance they concede to the L1 influence. Starting, for example, on the one end of the continuum with the Full Transfer/ Full Access Model (Schwartz & Spouse 1994, 1996), which expects learners to build their entire second language grammar on their L1 grammar, the enumeration can be continued with Eubank's (1994) position. He supposes, that lexical and functional categories but no lexically driven information, as for example the strength of inflection, will be transferred. Next in line, Vainikka & Young-Scholten (1994) argue that transfer is solely reduced to lexical categories. Finally Processability Theory (Pienemann 1998, Pienemann & Håkansson 1999) assigns the native language only a very minor role. It claims instead that a second language is acquired following a predictable implicational order, which is the same for all learners independent of their respective native language.

The answers given by the different researchers are obviously incompatible with each other, reaching from Full Transfer/ Full Access Model's view "all is transfer" to Processability Theory's "there is no transfer". The aim of this thesis is to shed light on this confusing scenario concerning transfer in syntax. To this end, hypotheses derived from the two most contrasting theories, Full Transfer/ Full Access Model (FT/FA) and Processability Theory (PT) will be tested on oral data produced by learners of German with Swedish as their L1 with focus on word order.

It is particularly interesting to investigate Swedish learners of German because both languages in question are *verb second* (V2) languages. This means that the verb always has to be at second place in a main clause. Consequently subject and verb will be often inverted; i.e. the verb appears before the subject. According to Håkansson (1997) so much as 40% of all utterances by native speakers of Swedish and German have an inverted word order. Nevertheless PT claims, that inversions are acquired late in the SLA process. If the Swedish

native speakers use inversions from early on in their German production, this can be used as evidence for transfer. If they do not use it, however, PT's claims are strengthened.

It is important to point out that the precursor to this study, an investigation by Håkansson (2001) supported PT's claims. There, however, written data was tested, for which PT is, strictly speaking, not foreseen. From a cognitive point of view the production conditions for written and oral material are essentially different. The time constraints in the latter leads to a far shorter and less conscious planning of the utterances, which in turn might influence the transferability of properties. A study on oral production does therefore not necessarily lead to similar results. All in all then, not only the descriptive and explanatory power of PT and FT/FA will be under investigation, but in a wider sense also the (extent of) L1 influence on the SLA process.

A complicating factor in the present research is that all informants also have some knowledge of English. (English is the compulsive first foreign language in Swedish schools.) Therefore even features of their previously learned language (LN), English, which may influence the German production of the Swedish children, will be discussed later on³.

The organisation of the paper is as follows:

Section 1 is devoted to provide the reader with the necessary background information to set the research and the discussion later presented in this paper in its context. Thus section 1 continues with an overview over important earlier research on transfer with special consideration to the developmental stages in German word order. Next, in section 2, a short introduction to the Full Transfer/ Full Access Model is given followed in section 3 by a description of Processability Theory.

Section 4 displays a brief description of the relevant features of the languages in question: German, Swedish and English.

In section 5, based on the previously given information the hypotheses are formulated.

Section 6 turns to the empirical study and provides background information on the subjects as well as particulars of the data elicitation technique and the transcription standard.

³ I use Håkkan Ringbom's (1987) terminology to depict the status of languages (L1= native language, L2 = language intended to produce by the learner, i.e. the target language, LN = any other previously learned language). I did not choose to use the otherwise common way of referring to the languages according to their chronological acquisition (L1, L2, L3, etc.). On the one hand this terminology unintentionally suggests a ranking of the language proficiency. On the other hand, I consider this terminology as rather confusing in relation to the terminology of the exclusively SLA literature. Here the second language always depicts the target language and not a previous learned language as in the "Third language acquisition" literature. Moreover, the presumably L3 might be actually the L4, i.e. there are more than only one previously learned language, making an attempt to number the languages if done correctly unnecessarily complicated. However I consider it important to state which other languages are a part of the learner's knowledge to make a discussion of the results in the light of specific "L3 acquisition" characteristics possible.

In the following section 7, a distributional analysis is carried out and the results are presented in an implicational scaling.

In section 8, the results are discussed.

Finally in section 9 the paper is concluded by a short summary.

1.2. Earlier research

In the following, some of the important earlier findings of SLA and of the research on transfer will be presented, not merely with any claim of completeness but rather to provide the reader with the necessary background information about the research topic of this paper. For a more detailed account, see, for example Braidí (1999) or Larsen-Freeman & Long (1991).

In the 1950s and 60s Contrastive Analysis Hypothesis (CAH) had both in scientific and teaching circles much influence. Intuitively, it is a very appealing theory and many language learners and teachers believe in its mechanisms still today. FT/FA bears some similarities to it, as we will later on see. In modern research CAH is refuted, but because of its tempting nature on the one hand and its importance for the concept of transfer on the other hand it will be presented in the following.

CAH was strongly based on the psychological learning theory of Behaviourism (e.g. Skinner 1957). In the school of Behaviourism all learning was considered to be the result of habit formation through imitation, positive reinforcement and practice. Thus also language learning, first or second, was considered to be habit formation and our language ability consisted of a set of language habits.

Yet in contrast to a first language learner, the second language learner already has a set of habits, the habits of his first language. According to behaviouristic theory, these have to be replaced by the L2 habits. A proceeding that is not easy. The L1 habits are namely assumed to be so well established and so appealing to use that they constantly get in the way of the L2 habit formation process. They transfer.

Based on these assumptions Lado (1957) formulated the *Contrastive Analysis Hypothesis* (CAH). His logically simple assumption was that the transferred L1 habits either facilitate or inhibit the process of L2 habit formation. Where native and target language are similar, the L1 habits would facilitate the learning of L2, which is, as we already mentioned, referred to as *positive transfer*. Whereas where the L1 habits diverge from the L2 norm,

negative transfer or *interference* would occur and the respective structure would be difficult to acquire and as a result be a potential source of errors. As a consequence a detailed comparison (*contrastive analysis*) of the native and the target language would suffice to reveal areas of differences and similarities. These in turn would allow to predict where errors would and where they would not occur. Thus transfer was a key concept of CAH.

To give an example, imagine an English L1 speaker trying to say *I was at the station yesterday* in Swedish and respectively in German. The CAH would predict that the English L1 speaker would make less errors producing the Swedish corresponding version *Jag var på stationen igår* (= I was at the station yesterday) than the German one *Ich war gestern am Bahnhof* (= *I was yesterday at the station). The reason is that the order of temporal adverbials in relation to local ones is similar in English and Swedish (local before temporal), but different in German (temporal before local).

Summing up, from a behaviouristic viewpoint, transfer, positive or negative, plays a central role in the acquisition of a second language on all linguistic levels. All deviations from the target language produced by a language learner, i.e. all errors are due to transfer.

As mentioned before, the CAH was very influential and inspired many productive investigations. Nevertheless, it soon became apparent that the CAH was not compatible with the empirical and theoretical findings that emerged. On a theoretical level, its developmental psychological fundament, behaviourism, was questioned; most famously in Chomsky's review of Skinner's book *Verbal Behaviour* in 1959. Chomsky considered language to be too creative to be explained by imitation. On the other hand, in his opinion, language was far too complex and abstract to be inferred from the mere input a learner received. This problem is known as the *logical* or *Plato's problem of language acquisition*.

On an empirical level, studies demonstrated that the predictions arising from CAH were often inappropriate. Neither did all contrasts between L1 and L2 lead to learning difficulties, i.e. CAH overpredicted, nor did all similarities guarantee a simple and error free acquisition (Larsen-Freeman & Long 1991:55). Alongside, following CAH's reasoning, where languages differ, the disturbing influence of the native language occurring should be bi-directional, i.e. no matter which language is the target and which the native language. Yet, empirical tests showed different results (cf. Selinker, Swain & Dumas 1975 or Zobl 1980 in Towell & Hawkins 1994:18f): some kinds of errors occurred only when, for example, French was the target and English the native language and not vice versa. A scenario not explainable within CAH.

Finally, analysing errors systematically, researchers found that transfer could not explain yet another type of errors. These errors rather seemed to be learner internal and rule-based and are often called *developmental errors* in order to distinguish them from transfer errors. An example is an utterance like * *Jimmy goed* by an English L2 learner (Mitchell & Myles 1998:25). It can be analysed as being the result of an internalised rule (add *-ed* to the verb to express past), which is, from a target language perspective, overgeneralised, to irregular verbs. This explanation however, does not fit into the frame of CAH. It goes far beyond mere imitation and habit formation and ascribes to the learner a mentally far more active and creative role than foreseen by CAH.

Suffice it to say that on both levels, empirical and theoretical, CAH was questioned and eventually refused. Apparently, transfer did not play the all-determining role that CAH had ascribed to it.

Right after the defeat of CAH many researchers refused almost completely the importance of transfer (Dulay & Burt 1973; Krashen 1981 in Larsen-Freeman & Long 1991:62ff). The pendulum swung to the other extreme, as Towell and Hawkins (1994:28) put it, and after considering all deviations from the TL as influence of the L1, now the idea was that almost nothing could be traced back to it. Instead everything was considered to be a creative construction.

In the following time the ideas about the importance of transfer diverged. A review by Ellis (1985 in Mitchell & Myles 1998:30) of studies, scrutinising the proportion of errors ascribed to L1, reports that the range of errors attributed to L1 transfer reached from 3% to 51% with an average of one third. Thus the smallest common denominator of the reviewed studies was the acknowledgement that at least there was such a phenomenon as transfer. This is what is now generally accepted: transfer plays a role in the SLA process. But to which extent and on which linguistic levels, these are the still open questions, as we saw in the previous chapter. All in all then, the picture about transfer got more refined and at the same time more complex. The question asked got as a consequence more specified and elevated and, as aforesaid, a modular approach is now generally taken towards transfer (Sharwood Smith & Kellerman 1986).

Another important concept in SLA research came along with a shift of perspective. In the CAH paradigm, researchers had focused on the comparison of native and target language. After the defeat of CAH, in the 1970s by contrast, researchers turned their focus on the learner language production itself. In a seminal paper, Larry Selinker (1972) did no longer perceive the learner production as an inferior version of the TL, or searched

exclusively for L1 transfer, but instead recognised the language production of learners as a language system in its own rights with an internal consistency and grammar. He called this learner language *Interlanguage* (IL). A learner's IL is accordingly considered to be rule-governed and systematic at every point of its development (Mitchell & Myles 1998:31). Developmental errors supported this claim. Hence "errors" were no longer perceived as a mere imperfect version of the TL but rather as a reflection of the systematic of the mental grammar the learner constructs approaching the TL.

To investigate the learner language in its own rights was a milestone in SLA. It made it possible to find and describe characteristics of the developing and dynamic learner language. In the realm of this paper, particularly two characteristic features are of interest. Firstly, the systems, which a learner constructs to approximate the TL norm develop in discernible stages; i.e. there are clear differences between one IL system and the following. There is no continuum but instead a staged development of certain grammatical properties (e.g. Dulay & Burt 1973/74). Secondly, these stages are similar across learners of a given language; i.e. what is learned early by one learner is learned early by others (Lightbown & Spada 1993:57). One example is the work of the project *Zweitspracherwerb italienischer (portugiesischer) und spanischer Arbeiter* (ZISA; Clahsen, Meisel & Pienemann 1983). Learners of L2 German with Italian, Spanish and Portuguese as L1 were interviewed in a longitudinal study and showed the same development in the acquisition of word order rules. The developmental stages are presented with examples in table 1.

Table 1. Developmental stages in the acquisition of German word order

Developmental Stages	Examples
1. SVO (canonical word order: subject-verb-object)	Der Mann soll waschen die Schlange the man should wash the snake
2.ADV (preposed adverbs)	Dann der Mann soll waschen die Schlange then the man should wash the snake
3.SEP (verb separation)	Der Mann soll die Schlange waschen the man should the snake wash 'the man should wash the snake'
4.INV (inversion)	Dann soll der Mann die Schlange waschen then should the man the snake wash 'then the man should wash the snake'
5. V-END (in subclauses: inflected verb in last position)	Ich finde, dass der Mann die Schlange waschen soll I think that the man the snake wash should 'I think that the man should wash the snake'

On the first stage, SVO, the learners produced sentences with a stable subject-verb-object order. There were no other constituents found in internal position of this canonical word order. If adverbials were produced they appeared in sentence-final position.

Next, in ADV, learners began to front adverbials, while they retained the canonical SVO order. Since German has a verb-second rule, requiring subject-verb-inversion, all these sentences are deviant from the target version. In standard German the adverb-preposing rule is optional, that is, the adverb can also appear in final or sentence-internal position.

In SEP, the learners placed non-finite verbal elements (participles, infinitives, particles) in sentence-final position, while the finite verb stayed in second position. The verb group is thus separated. In standard German this rule is obligatory. Learners of German on this stage generalised this pattern also to subordinate clauses, which deviates from standard German, however.

On the fourth stage, INV, the learners placed the verb in sentence-second position, resulting in subject-verb inversion. This is also in agreement with the obligatory rule in standard German.

Finally, in subordinate clauses, the learners put the finite verb in sentence-final position (V-End).

The findings of the ZISA project indicated that the developmental stages are not only similar across learners of the same native language but even the same across learners of different L1s. Are the stages unreceptive to L1 transfer, then? In order to draw this conclusion, learners with different L1s have to be studied. The ZISA-project inspired, accordingly, to investigate the German word order acquisition of learners with various different native languages, as for example Turkish native speakers (Schwartz & Sprouse 1994), Korean native speakers (Vainikka & Young-Scholten 1994) and English native speakers (duPlessis et al 1987; Eubank 1990). The oral production of native speakers of a V2 language, as for example Swedish, from which positive transfer could be expected, were however not yet studied. Despite all these studies it is, as we saw, still a discussed issue, whether there is L1 transfer or not in the developmental stages in German word order acquisition. Let us turn, then, to two of the disagreeing theories: PT and FT/FA, which will be presented in the following.

2. All Is Transfer - The Full Transfer / Full Access Model

As the name of the Full Transfer/ Full Access model already indicates, Schwartz and Sprouse (1994, 1996) expect transfer to play a central role in the SLA process. They assume that in the beginning the learner uses his entire L1 mental grammar to represent the L2. That is, he transfers the L1 grammar completely. When the L2 input does not match his internal L2 grammar (i.e. initially the L1 grammar), he will change it, trying to better adjust his mental representation to the L2 input. Consequently, the learner will give up applying his L1 syntactic rules slowly, constructing more and more an independent L2 grammar, but only if the input tells him so. Hence, there is initially a *full transfer* of the L1 mental grammar to the L2 mental grammar.

Superficially, FT/FA seems to be quite similar to the CAH. There, the L1 habits transfer and are when necessary replaced by L2 ones. Here the L1 mental grammar transfers and will be replaced by the L2 grammar. Leave aside the terminology, what is the difference? The crucial difference is the object of study. In the CAH, formal rules describing surface structures are on focus. FT/FA, by contrast, argues within the linguistic theory of Universal Grammar (UG) developed by Chomsky (1981)⁴. That is in the FT/FA model the mental operations, which underlie the production of surface structures are concerned. Due to CAH's and FT/FA's different objects under study and ways of analysis also different properties are predicted to transfer. Thus their similarity is really rather limited and superficial. (For a further comparison of CAH and the UG approach in terms of transfer cf. Braid1999:68f).

Even though the reader might be well familiar with the UG approach, I will shortly summarise its impact on the SLA research field. This is mainly done in order to provide background information to the FT/FA model, but also because the L1 transfer as a research topic has lately been revived particularly within this approach. For a more detailed account of UG and SLA, see Cook (1993).

Within the Universal Grammar approach transfer is the result of an interplay of a series of theoretical assumptions. Chomsky claims that language knowledge is to big extent innate. He calls the linguistic theory of this innate knowledge *Universal Grammar*. It consists

⁴ Since the first concept of Universal Grammar, the linguistic theory has gone through several major changes. FT/FA is constructed on Chomsky's Government and Binding Theory (Chomsky 1981). The linguistic theory itself has developed further to what is known as the Minimalist program. On the problems for SLA with linguistic theory constantly changing cf. White (1995).

of *principles* with their respective *parameters*. The principles are universal and depict what is common to all human languages. The parameters are limited in number and express the possible variation of the universal principles. The parameters hence spell out what is structurally different across the languages in the world.

What does this mean for the acquisition of a language? The innate limited number of principles and their possible parameter settings constrains the hypotheses a learner can make about the possible structures of a language. When a learner thus listens to a language, he only needs a small amount of input to decide which setting of the parameters is relevant for his TL. Consequently the language acquisition task gets simpler. The idea of innate principles and parameters, which are fixed by incoming data or experience, solves according to Chomsky, the logical problem of language acquisition, i.e. how a cognitive immature learner (child) can learn such a complex and abstract system (language) in a relatively short time with little and even flawed input.

Language learning from a UG perspective consequently affords to fix the parameters to the appropriate value and to learn the lexicon of the given language (Schwartz 1996). This is the situation in the L1 acquisition process according to the UG approach.

If we now turn to SLA we face the same logical problem: the complex and abstract language system is deduced from little and flawed input. But even though the task is the same, it does not necessarily mean, that the L2 learner tackles the problem the same way as the L1 learner does. After all, L2 learners are different from L1 learners partly because they are cognitively more mature and partly because they already have a mental representation of language, with the parameters set to the values of their native language. Moreover, they have different needs simply because they have already a language to express themselves. Hence L2 language learners have presumably more resources at hand to solve problems and to build representations of an abstract and complex system such as language. Paradoxically, however, the result of their efforts is seldom as successful as that of the less developed L1 learners. L2 learners generally stop in their development before native proficiency (Towell & Hawkins 1994:2)⁵.

From a UG perspective the differences between L1 and L2 acquisition gave rise to several questions. For example, does the L2 learner have actually still access to the UG? If he does, why does he not get as proficient as an L1 learner? If he does not, what other

⁵ To stop before native like proficiency is often referred to as *fossilisation* (Selinker 1972). Fossilisations seem to be unsensitive to instruction and even after many years of exposure to an L2, in a situation in which the learner uses the L2 every day, the production is usually not native-like.

cognitive learning mechanisms does he apply to mentally construct the L2 grammar? Which role, finally, does the L1 play? Can the learner take advantage of the L1 parameter setting? Or can he even get access to the UG through the L1 setting? As Mitchell & Myles (1998:61f) point out there are four major alternative positions concerning UG access and L1 influence, which all have supporters in the SLA research field.

One of them is held by Schwartz and Sprouse' model, meaning that there is *full transfer* of the L1 while the L2 learner has *full access* to the UG. Thus to express its predictions with UG terms; the L1 parameter setting will be the initial state of the L2 parameter setting and slowly step by step the parameters will be switched adapting to the L2 input. All switches will take place constrained by UG (since it is still fully accessible) and the changes will hence be explainable through a description of a parameter.

FT/FA's perspective on SLA implies that learners with different L1s will not follow the same developmental route for a given TL. If the L1 grammar is the starting point of L2 acquisition, different developing paths can be expected. A different starting point suggests a different development and end point. As Schwartz and Sprouse (1996:67) assert, this is particularly the case in syntactic development. Consequently, the developmental stages in German word order acquisition cannot follow an implicational order across learners with different L1s. FT/FA does not ignore with this assumption the ZISA results. Instead Schwartz and Sprouse (1994) point out that all languages, which were studied in this project were typologically similar. Being Spanish, Italian and Portuguese they were all Romance languages (see above), which share properties as being head-initial or pro-drop-languages. Therefore, according to Schwartz and Sprouse, the ZISA results only apply to the staged development of German word order across Romance native speakers, not across learners in general. Hence the ZISA results do not contradict FT/FA's assumption that the word order development will always depend on what native and what target language the learner has.

In the case of our study, examining learners of German with L1 Swedish, FT/FA would predict the Swedish parameter setting to transfer entirely to the learner's initial presentation of the L2 German grammar. Where the underlying parameter setting of the syntactical structures are the same in both languages, i.e. the V2-property (inversion), the learner should apply the structure correctly, right from the beginning, since the input does not tell anything different.

FT/FA does not consider a situation in which a learner is in command of other previously learned languages than the native one. Thus the scenario of LN transfer is not foreseen in the model. Accordingly we can only speculate what happens with the LN

parameter setting in the L2 acquisition. Will it transfer or not? What will rather transfer the L1 or the LN parameter setting? These are so far open questions in the FT/FA model.

3. There Is No transfer – The Processability Theory

Processability Theory (Pienemann 1998, Pienemann & Håkansson 1999) assigns the native language only a very minor role. It claims instead that certain properties of a second language are acquired following a predictable implicational order, which is the same for all learners independent of their respective native language.

PT is inspired by the developmental stages found in the ZISA- project and tries to explain the underlying cause of their existence. It gives a cognitive explanation. According to Pienemann it is important to consider how the ability to process a language develops when we try to explain why learners follow a fairly rigid acquisition route. *Processing* a language means in this context the capacity to use the linguistic knowledge under the time constraints of oral production. That means words have to be accessed and grammatical structures to be built under a high speed. Due to this focus, PT applies only to spontaneous oral production (Pienemann1998:xvii) .

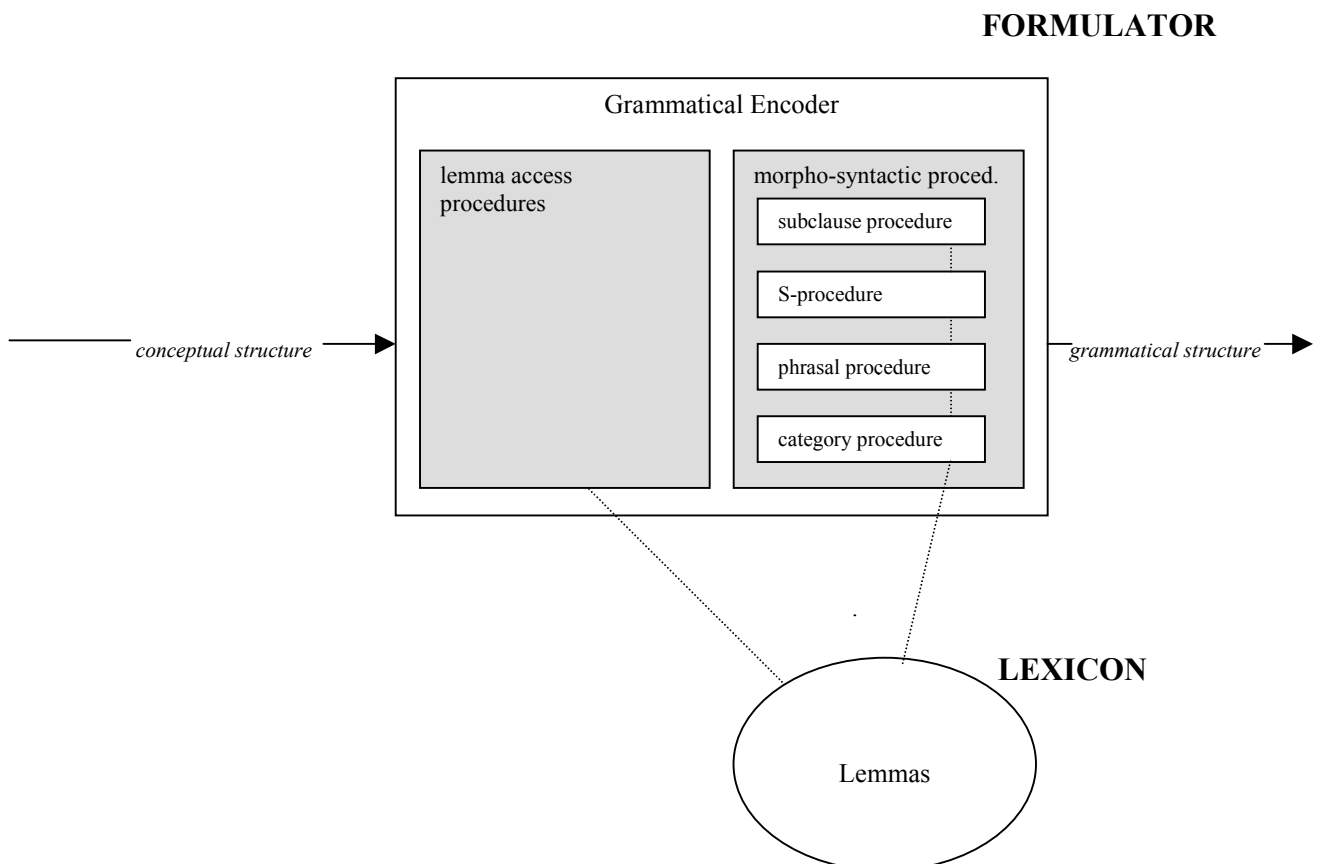
The processing of language is a factor, which is easily underestimated thinking about language acquisition or production. Thinking of learning or speaking a language, people have commonly in mind rather the learning of vocabulary and linguistic rules than using processing procedures. That the processing, however, plays an important role becomes apparent thinking about the errors and slips even native speakers commit despite their knowledge of the correct forms. Often they are even able to correct themselves right after an ungrammatical utterance. Obviously then, in these cases, the linguistic knowledge is present but the processing of this knowledge involves complications. In Pienemann's theory, as its telling name already indicates, the very processing is under investigation.

His ideas of how language is processed are shaped by Levelt's (1989) model of language production. Levelt gives a detailed account about how an utterance is produced from the very intention to its articulation. Pienemann concentrates on the following components of Levelt's language production model: the formulator, with the grammatical encoder and the lexicon with the lemmas, since it is here where the production of morpho-syntax takes place. The formulator transforms its input, a conceptual structure, into a grammatical, surface

structure, or to put it simple: what a speaker wants to express is put into words and is given a structure.

Pienemann zooms with PT further and explains that the grammatical encoder of the formulator “contains procedures for lemma access and syntactic building procedures” (Pienemann 1998:62). A *lemma*; i.e. an entry in the lexicon, consists of the meaning of lexical items and of the syntax of each word (Pienemann 1998:62). Once a lemma is activated, it instigates a range of syntactic procedures to construct its proper syntactic environment (Pienemann 1998: 66). These syntactic processing procedures are put into action in an implicational sequence in order to produce a sentence. The sequence of the processing procedures is implicational since a procedure can only be accessed when the previous one has been applied, i.e. one procedure is the prerequisite for the next procedure. Or to put it differently the output of a lower processing procedure forms the input for the next and higher processing procedure. Without this input the higher processing procedure cannot even start working. Figure 1 presents a model of this idea. The morpho-syntactic procedures named here in the white boxes will be explained in the next chapter.

Figure1. Extract of Levelt’s (1989) model with Pienemann’s (1998) specification of the grammatical encoder.



Pienemann claims that the implicational processing procedures are not only essential in language production but also in the acquisition of a second language. The underlying reason is that only a mature language user, e.g. a native speaker or a proficient L2 speaker, can apply the full hierarchy of processing procedures. The L2 learner has to acquire the processing system in a step-by-step hierarchical fashion. Hence, learning a language means, according to Pienemann, among others to acquire these very processing procedures. One might wonder why a second language learner has to acquire these processing procedures. After all he successfully speaks a language, his L1, and is consequently already in command of processing procedures. Still Pienemann suggests that the L2 learner has to acquire the processing procedures again, because certain procedures and routines are language-specific. The underlying reason for it is that the syntactic procedures are instigated by the activation of a lemma, as we mentioned above. The learners do not use the lemmas from the L1 lexicon (at least as long as the languages are not so similar that they share the same lexicon, as f.ex. the case is with dialects). Instead they build a new lexicon and annotate the lemmas, which in its turn leads to the fact that certain procedures and routines are language-specific and have to be acquired just as the L2 lexicon has to be acquired, too. This underscores, moreover, the importance of the lexicon in PT and as Håkansson (2001) points out, one can say that PT claims that the grammar emerges from the gradual development of the L2 lexicon.

Processability Theory, now, spells out the processing procedures, informs what is language-specific about them and hence makes it possible to deduce the structural outcome for a specific language. We will turn to this issue in more detail in the following chapter.

Before that, let us consider once more the developmental stages. PT started out to explain them. How is this? As presented above, the processing procedures are essential in the SLA process and they have to be acquired. Important is that, according to Pienemann, they will not be acquired in a random order but following, step-by-step, the implicational sequence in which they are used in the production process.

Additionally Pienemann suggests that only what can be processed can be learned. The underlying idea is that since we have to acquire the processing procedures, we cannot process all formally possible structures at a given time in the acquisition process, but only certain “processable” grammatical structures. Each stage of the developmental stages represents accordingly the presently processable grammatical structure. Or in other words: the developmental stages are a reflection of the slowly developing processing procedures.

Pienemann distinguishes six major stages in the development of the L2 processing system. These stages derive on the one hand from the processing procedures, which can also be expressed in terms of grammatical information exchange. On the other hand a general cognitive principle, namely, perceptual saliency (Slobin 1979 in Michell & Myles 1998:74f) shapes some of the stages⁶. In order to predict which structures of a specific language occur at a given time in development, the processing procedures are implemented into the Lexical Functional Grammar (LFG) (e.g. Kaplan & Bresnan 1982), i.e. the linguistic knowledge is expressed in LFG. The most important characteristic of this grammar in the realm of PT is, apart from being lexically driven, the concept of *feature unification*. Feature unification means, to put it shortly, that through the exchange of grammatical information between constituents it is ensured that the different parts that constitutes a sentence fit together.

In the following, the six stages are presented together with a brief description of the interlanguage grammar, which results from the gradual availability of the processing procedures in general and of German in particular. For a more detailed and profound explanation and derivation of the stages see Pienemann (1998) and Pienemann & Håkansson (1999).

3.1. Development and Interlanguage Grammar of the L2 Processing System

0. First of all, the learner has to identify and to acquire the words of the target language. The new words are entered into the lexicon. Since they are however not yet fully annotated the learner has no access to further syntactical information or procedures. As a consequence the language production process is cut off very early and the conceptual structure is mapped onto single words or fixed phrases (*chunks*). There is no sequence of constituents.

1. Next a grammatical category is assigned to the lemma (*category procedure*). That means that the learner is able to identify word classes.

While learners on this stage can produce more than on the previous one, the grammatical information exchange is still blocked. A L2 learner, however, is more or less

⁶ The principle of perceptual saliency argues that humans perceive information in a certain way. A number of studies demonstrated that the first and the last stimulus of a sequence are always better remembered than the other stimuli (Pienemann 1998:78). Analogous, the beginning and end of sentences are believed to be perceptually more salient.

cognitively mature. Therefore he has access to the full range of semantic roles (e.g. agent, patient, action, source, goal etc.), which he will try to express in the L2. Still it is not possible at this stage to use the respective L2 procedures. Hence the learner will use simplified procedures. According to Pienemann, one of such procedures is serial / canonical word order, i.e. always the same order of the major constituents is used. In German, for example, the result is a stable subject-verb-object (SVO) order.

2. At this stage, due to acquired phrasal procedures phrases can be produced. For all that, the phrases cannot yet be gathered into a sentence through syntactical procedures. Accordingly serial / canonical word order is maintained. Nevertheless the learner can by now apply the general cognitive principle of perceptual saliency. Consequently he can identify the positions outside the SVO sequence. In German this results in preposed adverbs (ADV).

3. At this level a “simpler” S-procedure is developed. This implies that the grammatical function (subject, object etc.) of the phrase can be determined and the phrases can be assembled into sentences by syntactical rules. Still however perceptual saliency plays an important role considering which structures are created first. Pienemann claims namely that target positions of a constituent are easier identified if they are perceptually salient. These positions will be first filled. In German word order, as a consequence, the uninflected main verb of a complex verb construction (*gegessen* in *habe gegessen*) is put into final position which results in a separation between auxiliary and main verb (SEP).

4. Now the S-procedure is completely developed. Main sentences can be constructed according to L2 constraints. This means for German learners, for example, that they can process inversions (INV). On the other hand this implies that information can be exchanged across phrase boundaries.

5. Finally the learner has to learn to distinguish between main and subordinate clauses since different grammatical rules apply in these cases. To this end new elements will be attached to the lemmas of verbs. As we are in the realm of this paper only concerned with main clauses, this stage is in the following not further discussed.

The outcome for the German word order is summarised in table 2 (Pienemann 1998:116). The abbreviations for the description of the word order are adopted from the ZISA-project (cf. table 1, chapter 1.2).

Table 2. Processing procedures and their consequence for German word order

Stage	Procedure	Word order
0		words / chunks
1	category procedure	SVO
2	phrasal procedure	ADV
3	simple S-procedure	SEP
4	S-procedure	INV

Obviously then it is possible to derive clear, testable predictions from PT: if a learner can produce structures belonging to one stage, he will also be able to produce the structures of the previous stages. Transfer, however, plays if at all only a minor role in the acquisition process seen from a PT perspective. It does not change the underlying cognitive processing.

In the following not only the predictions and hypotheses derived from PT but also from FT/FA shall be tested. That means we turn now to the empirical part of the study. The hypotheses will be tested on oral data of Swedish children learning German. The focus will be on German word order, because of the aforementioned interesting fact that both languages are V2 languages. Thus if there is transfer in syntax, it can be expected that the V2 property will transfer.

4. Characterisation and Opposition of the Three Languages Involved

In this study the focus is on word order, particularly on verb placement. Therefore some relevant properties of the languages involved are discussed in the following. The structures under consideration are VP headedness and V2. The languages presented are Swedish (L1), English (LN) and German (L2).

4.1. VP Headedness

English and Swedish are both head-initial languages. That is the complement always occurs after the head in the VP. German however has a different and more complex and discussed (cf. Grewendorf, Hamm & Sternefeld 1989: 217ff; Dürscheid 1994) order of head and complement. It is nowadays assumed to be head-final. However in main clauses with simple verb constructions this fact is obscured and only visible in complex verb

constructions. In the latter case the finite verb stays in second position, the non-finite verb however is in the final position of the sentence.

(1a) Simple verb construction:

Swedish :	Ormen åt hunden the snake ate the dog
English :	The snake ate the dog
German:	Die Schlange aß den Hund the snake ate the dog

(1b) Complex verb construction:

Swedish :	Ormen har ätit hunden the snake has eaten the dog
English:	The snake has eaten the dog
German:	Die Schlange hat den Hund gegessen the snake has the dog eaten

As the examples show quite clearly, all three languages display the same word order in main clauses as long as there are only simple verb constructions. In the case of complex verb constructions Swedish and English share the same word order.

4.2. V2

German and Swedish are V2 languages. That means that the finite verb is always in second place in declarative main clauses. Thus the subject can appear before or after the verb. The latter, inversion, has to be the case in *topicalised* main clauses; i.e. in sentence which start with an element other than the subject, for example with an adverb. In English there is no inversion in declarative main clauses⁷. Instead the sentence will take the form of adverb-subject-verb (ASV).

(2a) Simple verb construction:

Swedish:	Idag läser mannen tidningen today reads the man the newspaper
English:	Today the man reads the newspaper
German:	Heute liest der Mann die Zeitung today reads the man the newspaper

⁷ Some adverbs as *never* and *seldom* form when topicalised an exception to this rule. They entail inversion.

(2b) Complex verb construction:

Swedish :	Idag har mannen läst tidningen today has the man read the newspaper
English:	Today the man has read the newspaper
German:	Heute hat der Mann die Zeitung gelesen today has the man the newspaper read

The examples show that in main clauses with simple verb construction Swedish and German word order are the same. When there is a complex verb construction, however, the non-finite verb is in head final position in German and as a consequence differs in these cases from the Swedish one. English word order differs both from Swedish and German word order whether with simple or complex verb construction.

The following table 3 shows which languages display which grammatical property:

Table 3. Distribution of the grammatical properties under discussion.

	V2	head initial
Swedish	+	+
English	-	+
German	+	-

Looking at table 3, it is apparent that Swedish shares features with both English and German, but visibly differs from them, too. It shares the V2 property with German, and the VP headedness with English. German and English do not share any of the properties under discussion.

5.Hypotheses

Based on the information presented so far, it is possible to derive hypotheses both from FT/FA and PT concerning the acquisition of German word order rules by Swedish learners.

FT/FA hypothesis: The L1 grammar transfers to L2 grammar

A. The learners will transfer the L1 subject-verb-inversion to the L2.

B. The learners will transfer the L1 initial-headedness to the L2.

Structures to be expected in the elicited data; i.e. predictions:

- a. Inversions, especially in the production of the first year learners, and no structures as ASV
- b. In complex verb constructions the word order will be to a lesser degree be SVOV (see German example in 1b) and instead preferably be of the form 3 or 4.

(3) *Er will baden die Schlange (SVVO)

he wants bathe the snake

'he wants to bathe the snake'

(4) *Dann will er baden die Schlange (AVSVO)

then wants he bathe the snake

'then he wants to bathe the snake'

PT hypothesis: The L1 grammar does hardly affect the L2 grammar

C. The learners' production follows the implicational order $SVO \subset ADV \subset SEP \subset INV$

D. Even though the informants apply inversion in their L1 they will only be able to use it at a later stage of development

Structures to be expected in the elicited data; i.e. predictions:

- c. Structures of the form ASV, and inversions rather in the production of the second than the first year learners
- d. When the informant applies inversion, s/he can also separate the complex verb construction as in example 5.

(5) Dann will er die Schlange baden (AVSOV)

then wants he the snake bathe

'then he wants to bathe the snake'

But since the uninflected verb should appear in final position there will be no structure as in example 4.

6. Research and Method

6.1 Subjects

In order to investigate the hypotheses, data were collected in a cross-sectional study⁸ of children learning German as foreign language in a Swedish comprehensive school. Ten children of grade 6 and ten children of grade 7 were tested. Their age ranged from 12 to 14 years. At the time of the investigation the children had been studying German for eight resp. seventeen months, two hours per week, i.e. all in all 64 resp. 136 hours. All children had been learning English as their first foreign language since their respective third grade. Thus German represented chronologically their L3.

The German textbook was the same both for the first and second year learners. Inversions were present in the texts and material from the very beginning, even though the relevant word order rules were taught and trained only later on. Accordingly learners of the first year had merely been exposed to the inverted word order while the second year learners had also been trained to produce it. Yet all children had explicitly been made aware of the similarity of German and Swedish word order concerning inversions in main sentences on several occasions in the course of their instruction.

The informants were volunteers apart from four boys of grade 7. They were picked out because there were no boys of grade 7 who volunteered. The idea was to somewhat balance the number of boys and girls. All in all twelve girls and eight boys were tested. No correlation could be found between sex or volunteership and the stage of syntactic development. Hence boys as well as girls are represented on all developmental stages and the production of the four non-volunteers did not deviate in any specific way from the output of the other children.

⁸ Generally researchers consider longitudinal data preferable in order to determine developmental stages (e.g. Vainikka & Young-Scholten 1994). Only longitudinal studies follow the language acquisition of an individual learner over time and can thus reliably inform about his development. However, if the informants of a cross-sectional study represent a range of language proficiencies, then it is assumed that their aggregate performance at a single point in time will reflect the development similar to that of a single informant over a longer time period (Larsen-Freeman & Long 1991:13). Additionally Pienemann (1998:118ff) provides us with a data analysis technique, implicational scaling, with which cross-sectional data can be displayed in order to illustrate a development.

6.2. Test design and data collection

The test was designed with the intention to elicit a variety of sentence types in order to examine word order. A further aim was to obtain as natural and as spontaneous data as possible. Therefore, it was tried to keep the children unaware of the language features under investigation and to exert only little control over their performance.

The testing session consisted of three intervening parts, which all centred around three different comic strips that contained no text. The pictures of the comic strips were separated from each other. First, the children were asked to put them back into a sequence. The underlying idea of this non-linguistic task was partly to make the children focus on sequences and hence to elicitate the use of temporal adverbials. Partly it was also meant to relax and to distract the children from the pressure to talk German.

In the second part, the children were asked to tell a story with the help of the comic strips. The comic strips provided contexts for different word order possibilities, depending on whether a subject, object or adverbial was topicalised.

The third part of the test was an oral interview that followed each comic strip touching upon themes based not only on the comic strip itself but also on the children's personal life. Questions were asked about future events or intentions such as *Was wirst du in den Ferien machen?* (What will you do for holiday?) or *Wie kann der Mann den Hund retten?* (How can the man rescue the dog?) the purpose of which was to elicit modal verbs to provide context for the German split verb phenomenon. Even though the same catalogue of questions was asked in all interviews to keep the data comparable, the communication had no rigid layout. Instead the prepared questions were woven into the general discussion trying to get as close as possible to a natural conversation. The underlying hope was that the children would get involved in the subject matter and accordingly produce more spontaneous speech.

Two children at a time were tested in order to reduce their possible inhibition. The drawback of this method was, that the children could exert influence on each other to various degrees. There were interruptions, literal imitations and co-operations to the extent that some children would construct whole sentences together, alternatively uttering words. All these utterances were not considered in the study.

The data elicitation technique used in this study produced rich data, particularly considering the youth of the informants and their low German proficiency level. Crucial for the rich data seemed to have been that the interviewer was a German native speaker with only

limited Swedish skills. The children, knowing this, might thereby have felt less embarrassed to use their likewise limited German skills and might have dared to make mistakes. Furthermore, the fact that Swedish was no guarantee for a mutual understanding, favoured a conversation in German.

All sessions were completely tape recorded.

6.3. Transcription and Coding : Preliminary Data Analysis

The complete conversations were transcribed and checked against the tape. The transcription standard derived from the transcription analysis computer programme SALT (Systematic Analysis of Language Transcripts; Miller & Chapman 1992), which was used to facilitate the data evaluation. Since the informant's oral production was generally not transcribed in a phonetic system but as far as possible in standard orthography, interpretations had to be made as to which of the three language standards was to be chosen; i.e. the underlying question was which lexical item was activated and to which if any standard language the lexical item could be accounted for. An ambiguous case was for example:

(6) Caro: hast um eh Urlaub bin/been
 have at holiday am/been

Phonologically it is very difficult to distinguish the two possibilities. Writing the verbal construction as *hast been*, it is interpreted as depicting a slightly deviating version of the English imperfect form of *has been*. However, considering the word order, which actually presents the typical German split verb construction, the form could be analysed as being the first person, singular, indicative, present of the German copula *sein*, resulting in the ungrammatical construction of *hast um Urlaub bin*. Accordingly the different writing springs from a different interpretation. The ambiguity mainly occurs because all three languages in question are phonologically and lexically closely related to each other but have different writing standards.

For the purpose of this study, these observations are yet not of first priority. It is after all word order not lexical transfer, which is under investigation. Still, the transcription ambiguities stress the fact that results are often shaped by the way to present data, and that it is important to keep in mind that a transcription is a first step of data

interpretation. Quite apart from these methodological considerations, the question of which lexical item was activated increases and rises in importance in the realm of this study, depending on how closely connected and interdependent one considers lexis and syntax to be. Since PT expects syntactical procedures to be steered lexically, these cases could be nevertheless of importance. Hence, the data was carefully transcribed and in ambiguous cases a co-listener would be asked for her judgement. If the forms remained ambiguous, they would be marked as such in the data body.

A huge number of utterances were collected from each speaker but only a proportion of these were useful for the purpose of this study. In order to investigate word order with focus on inversions, it was obvious that only utterances, which contained at least a verb and a subject could be revealing. Only declarative main clauses were considered, which means that questions and subordinate clauses were excluded. The sentences did not necessarily have to be complete in order to be counted; i.e. utterances like

(7) Matteus: Der Mann geht mit die Schlange till> (Swedish preposition:to)

The man goes with the snake to>

'The man goes with the snake to'

were included in the analysis while sentences as the aforementioned (6) ,lacking a subject, were not. Furthermore, utterances that were interrupted by the speaker him/herself or by an interlocutor and which were only later on continued, such as

(8) Kenneth: Eh die Schlange> Vad heter saknat? (Swedish: What means missed)

eh the snake> What means *missed*?

'eh the snake> What does *missed* mean?'

Interviewer: Vermissen.

miss

'to miss'

Kenneth: Habe eh missen die Junge.

have eh miss the boy

'have eh missed the boy'

were also excluded. On the one hand, it is impossible to decide unambiguously if the sentence is really continued or rather newly started. A further argument is that PT only makes predictions about language processing in oral production; i.e. about language production

under a strict time constraint. The interruptions however prolonged the planning and processing time unduly. In sample 8, for instance, Kenneth even produces another sentence before continuing his IL production, making an analysis within a PT approach impossible.

Finally it should be mentioned that all utterances were interpreted as IL production as long as they were not purely Swedish; i.e. the sentences could be mixed of seemingly Swedish, German, English or genuinely IL forms to various degrees and still be accepted as IL utterances. An example is

(9) Eduard: Ja, als der Mann kams/comes ut [□t] von der Haus, der Mann eh seen eh der Schlange stor.

yes when the man comes out from the house, the man seen the snake big.

'yes when the man leaves the house, he sees that the snake is big'

Here the supposingly Swedish *stor*, the potentially English *comes* and *seen* or the not clearly definable word [□t] do not turn the utterance into English IL or Swedish utterances⁹.

Obviously the criteria applied were rather strict, which caused the exclusion of some potentially interesting examples (as for instance sentence 6). However the crucial advantage was that the criteria were straightforward and left little room for shifting decisions. So even if the quantity of the excluded data was diminished the reliability of the data and hence the quality were extended. To summarise, all declarative main clauses, ellipsis or not, which contained at least a verb and a subject, uttered in one uninterrupted utterance and which were additionally not completely Swedish were included in the analysis.

Following these criteria, in average 15% of the utterances of the first year learners and 23,1% of the utterances of the second year learners were included in the analysis. The bigger production of the second year learners is also evidenced by a higher mean length of utterance (MLU); 3.25 compared to 2.91 of the first year learners. This reflects the to be expected overall higher proficiency and productivity of the longer instructed learners.

Being interested in the phenomenon of inversion and the hypothesised developmental stages in German, the focus was on the following structures: SVO, ADV, SEP and INV. In order to see if these structures appeared in the data, each included sentence was analysed with respect to verb placement. To this end the sentences were on the one hand coded according to if and where the subject, verb and adverbial was positioned. On the other

⁹ The interesting placement of the adjective, which is neither native nor target like will be discussed in ch. 7.3.

hand it was coded if and where the sentence contained a verb construction as AUX + V resp. MOD + V and whether there was a verbal complement. A representative extract of the coded transcription is provided in the Appendix.

7. Results and Analysis

7.1. Distributional Analysis

A distributional analysis was carried out. The aim was to examine whether the Swedish learners used inversions and the topicalised but uninverted clauses (ASV) at all and if so, how these clauses were distributed among the learners. The use of inversions would indicate L1 transfer, the use of topicalised uninverted clauses however would contradict an L1 transfer hypothesis. Furthermore the objective was to see if the Swedish learners applied the word order rules according to the implicational order predicted by PT, which implies among others that there are sentences of the form ASV and that inversions appear rather late in the acquisitional process. Additionally it was checked which structure sentences with a complex verb construction had. The results of the distributional analysis for the first year learners (grade 6) are presented in table 4.

Table 4. Grade 6; distributional analysis: number of cases SVO, ADV, SEP, INV

name	utterances	words	declarat., main clause w subj/verb	declarat., main clause w SVO	declarat., main clause w ADV (initial)	declarat., main clause w SEP	declarat., main clause w INV
Cecilia	117	295	21	18	3	0	0
Anna	88	357	21	17	4	0	0
Eduard	196	551	22	20	2	0	0
Erika	92	284	15	14	1	0	0
Sandra	95	276	16	15	1	0	0
Johannes	100	294	12	11	1	0	0
Kenneth	86	206	6	6	0	0	0
Gelika	78	279	14	14	0	0	0
Emily	85	237	14	14	0	0	0
Robin	125	308	14	14	0	0	0
mean	106.2	308.7	15.5	14.3	1.2	0	0

The informants are listed vertically, the frequency of the respective applied structure horizontally. Consequently the first two figures respectively display the total number of utterances and words, followed by the number of all declarative main clauses. The next four columns show the cumulative syntactic rules under investigation. They are presented according to the hypothesised implicational order; i.e. canonical word order (SVO), preposed adverbials (ADV), separated verb constructions (SEP) and inversions (INV). Thereby the table can also be read in an implicational way. Adding the number of SVO and ADV one will get the total number of supplied main clauses with subject and verb since either a subject or an adverb was in first position. The last line gives the average frequency of the given structure.

Looking at table 4, it is evident that none of the first year learners met the structure of inversion in only so much as a single time. All this even though six of them put an adverbial in initial position (ADV), thus producing a context which triggers inversion not only in the target language but also in their native language. This means that these six learners use the in target and native language ungrammatical form of ASV: they prepose an adverb but the verb does not appear in second position. Three of the informants, Cecilia, Anna and Eduard use this ungrammatical form not only once but at several occasions, supporting thus the idea that it is rather a systematic use than a ‘slip of the tongue’.

All first year learners follow the hypothesised implicational order. No one is supplying a structure of a later stage without supplying the previous stages. Considering however the rather limited divergency of supplied stages this is not really surprising. It is difficult to imagine a learner uttering only sentences with preposed adverbs.

Let us have a look at the second year learners (grade 7). The results of the distributional analysis are displayed in table 5.

Table 5. Grade 7; distributional analysis: number of cases SVO, ADV, SEP, INV

name	utterances	words	declarat., main clause w subj/verb	declarat., main clause w SVO	declarat., main clause w ADV (initial)	declarat., main clause w SEP	declarat., main clause w INV
Caro	104	390	30	22	8	2	6
Zandra	127	365	14	12	2	1	2
Sofie	120	347	24	21	3	1	1

Johan	103	368	29	25	3	0	1
Peter	145	477	44	40	4	3	0
Karoline	309	1003	66	55	11	0	0
Ceci	177	564	39	36	3	0	0
Matteus	101	376	30	27	3	0	0
Mats	73	218	13	13	0	0	0
Camilla	87	266	14	14	0	0	0
mean	134.6	437.4	30.3	26.5	3.7	0.7	1

The table follows the set-up of the previous one. More obvious in this table, the informants are listed according to the number of different supplied stages.

In order to understand this table, it might be important to point out that individual utterances can be included in several columns of the table. A sentence like

- (10) Caro: Und dann kramen der Mann die Tier (Swedish verb stem with German ending)
 and then hugs the man the animal
 ‘and then the man hugs the animal’

is counted into the number of the columns *utterances*, *declarative main clauses*, *ADV* (since an adverb is topicalised) and finally into *INV* (because it displays inverted word order). Thus adding the numbers of the different possible word order rules displayed in the four leftmost columns will not make the number of the total number of declarative main clauses. In this table, too, this figure is only attained adding the numbers of SVO and ADV. There is however one exception. Johan says the following sentence:

- (11) Johan: Tragen den Mann die Schlange zu Hause
 carry the man the snake at home
 ‘the man carries the snake home’

It is a declarative main clause with verb and subject. Yet neither subject nor adverb are in first position but the verb itself. That is why it is only counted in the fourth column, the one of the total number of declarative main clauses. Thus adding Johan’s number of SVO and ADV (28) there is one, this utterance, missing to make the number of declarative clauses (29). This sentence has the form of a question with a fronted verb. It could be thus analysed as an example of stage four: there is a simplified s-structure and the verb is in salient

position. Looking at the data and the context in which this sentence was uttered reveals, however, that Johan started originally with *und dann* (and then) and interrupted himself then to ask for the German correspondence of *bära* (carry). Thus this sentence seems to be a resumption and is thus rather an example of INV. As said, it was still not counted in this column. The analysis was based on an interrupted sentence, which does not guarantee that the sentence was really continued and not newly started. Additionally, Johan does produce another utterance with INV, so that the counting or not counting of example 11 as INV did not seriously change the results.

Let us now look at the application of inversion in table 6. Only four learners in their second year of German acquisition use inversions. That means still six learners do not at all use inverted word order, likewise four of them produce ADV and hence provide the premises for inversion. This is even more surprising since on top of being part of their L1, these informants had been training inversion in their German course work. In this context it is also interesting that of all eight second year learners preposing adverbs, only one learner, Zandra, does not at all produce the ASV form that is ungrammatical in L1 and L2. All others including the three learners using inversion do (also) produce uninverted topicalised sentences. (The number of the ASV sentences is obtained through subtracting ADV from INV.)

Summing up this means that of all twenty informants actually only four; i.e. 20% used INV (28,6% of the 14 supplying a context), whereas 13 are using (also) uninverted topicalised ASV structures; i.e. 65 % of all informants. Or if we disregard the individual level and just look at the frequency of structure use, we can state that of all 49 topicalised sentences found in the data body 79,6% (or 39) display ASV structure while only 20,4% (or 10) sentences contain an inversion. Hence regardless if we consider the individual use or the general suppliance, the use of ASV structures is in clear majority whilst the use of inversions happens only in the minority of cases. Furthermore, it is interesting to state, that only second year learners produced the inverted structure.

At this juncture it is important to point out that the sheer size of data collected from each learner does not correlate with the variation of the applied word order rules. That is a learner does not use, for instance, more topicalised sentences the more s/he talks. Robin (table 4) and Zandra (table 5), for example, both produce approximately the same number of utterances (125 resp. 127) and declarative main clauses (14). However, Zandra manages to produce all four structures under investigation whereas Robin only supplies one (SVO). Besides, the by far most sedulous speaker, Karoline (table 2; 309 utterances and 66

declarative main clauses), is not the most varied or advanced one. She only produces sentences with SVO or ADV. The examples prove quite clearly that the structural variety is not dependent of the size of data. Or to put it into different -even though admittedly not new words: quantity does not imply quality. As a consequence the use or non-use of inversions cannot be attributed to the size of data.

Let us now see if the second year learners applied the word order rules in an implicational order. Apparently almost all informants keep to the implicational order, i.e. using an advanced structure they apply the precedent structure, too. The only exception is Johan in table 6. He applies INV but does not show any case of SEP.

The interpretation of this finding is however ambiguous. On the one hand it could in fact indicate, that Johan can produce INV but not SEP. On the other hand the structure could be missing, because the data sample simply has a gap. Maybe Johan has never applied a complex verb construction. Then of course it is no surprise that there were no verb groups separated in the data. There was no occasion or context to do so. What Johan does when he actually uses complex verb constructions, we do not know. There is a gap in the data and we can only speculate about Johan's possible production. Looked at in this way, it becomes apparent that it is crucial to take into account, if there is a linguistic context, which shows the application or non-application of the structure.

Strictly speaking the linguistic context was already taken into account discussing the results of table 4 and 5. It was then pointed out that of all 14 learners who preposed an adverb only 4; i.e. 28,6% did use inversion. If a learner preposes an adverb and does still not use inversion it can be deduced that s/he actually does not invert in topicalised sentences. Otherwise the non-existence of inversions can also be due to the non-existence of topicalised sentences. There is a gap in the data. Hence the linguistic context for INV is ADV.

For verb separation this linguistic context would be sentences with a complex verb construction; i.e. AUX/MOD + V, and a verbal complement. The verbal complement is necessary since sentences of the form NP + AUX/MOD + V, as

(12) Sofie: Und der Mann musst bära (Swedish : carry)

And the man must carry

'And the man must carry'

do still not throw light upon the use or non-use of verb separation: there are no elements to separate the verb group (Pienemann 1998:119).

Table 6 lists the linguistic context for all structures under investigation.

Table 6. Structure under investigation and its linguistic context

STRUCTURE	CONTEXT
declarative main clauses	→ utterances
SVO	→ declarative main clauses
ADV	→ main clauses with a preposed or/and postposed adverbial
SEP	→ main clauses with AUX/MOD and V and V- complement
INV	→ ADV

The table shows clearly that the linguistic context is no obligatory context seen from a target language perspective. The goal is not to see where the IL matches or mismatches the TL (Bley-Vroman 1983) but to describe which word order rule was used.

Coming back to John's production, before being able to decide if his data follows an implicational order, one has to see if there are main clauses with a complex verb construction and a verbal complement. To this end, table 7 gives the relative frequency of structures in proportion to their linguistic context for the second year learners.

Table 7. Grade 7; distributional analysis: number of structures in proportion to their possible linguistic context

name	utterances	declarat., main clause w subj/verb	declarat., main clause w SVO	declarat., main clause w ADV (initial)	declarat., main clause w SEP	declarat., main clause w INV
Caro	104	.29	.73	.80	.40	.75
Zandra	127	.11	.86	1.	1.	1.
Sofie	120	.20	.88	.75	.50	.33
Johan	103	.28	.86	.43	/	.33
Peter	145	.30	.91	1.	1.	0.
Karoline	309	.21	.83	.69	0.	0.
Ceci	177	.22	.92	.38	0.	0.
Matteus	101	.30	.90	.60	0.	0.
Mats	73	.18	1.	0.	/	/
Camilla	87	.16	1.	/	/	/
mean		.23	.89	.57	.29	.24

Table 7 follows the already described layout of table 4 and 5. Additionally, the diagonal stroke (/) signifies the non-existence of linguistic context. In these cases, the data has a gap. A null (0.), by contrast, marks that the structure was not applied in the presence of contexts; i.e. there is evidence for non-application of the rule.

Looking now once again at Johan's performance it shows that he actually did not provide the context for SEP. Consequently his data does neither clearly follow nor clearly deviate from the implicational use of the word order rules. It simply gives no evidence on this matter. Thus so far, we can state that, as far as there is evidence, all informants follow an implicational order.

Additionally it can be pointed out that the production of the second year learners is rather rich and varied. There are examples or contexts for most of the rules. Only six gaps are found in the data.

In the following table, table 8, the relative frequency of structures in proportion to their linguistic context is also given for the first year learners.

Table 8. Grade 6; distributional analysis: number of structures in proportion to their possible linguistic context

name	utterances	declarat., main clause w subj/verb	declarat., main clause w SVO	declarat., main clause w ADV (initial)	declarat., main clause w SEP	declarat., main clause w INV
Cecilia	117	.18	.86	.75	0.	0.
Anna	88	.24	.81	.80	/	0.
Eduard	196	.11	.91	.67	/	0.
Erika	92	.16	.93	1.	/	0.
Sandra	95	.17	.94	1.	/	0.
Johannes	100	.12	.92	1.	/	0.
Kenneth	86	.07	1.	0.	/	/
Gelika	78	.18	1.	/	/	/
Emily	85	.16	1.	/	/	/
Robin	125	.11	1.	/	/	/
mean		.15	.94	.52	0	0

The results in table 8 show clearly where there is and where there is not evidence for rule application. It shows once more that there is an information increase compared to the simple '0' in the previous analysis in table 4. It shows, however also, that there are 16 gaps in the data. The first year learners vary their production less concerning word order than the second year learners.

Alongside, the calculation of the relative frequency makes it possible to examine the individual performance in greater detail. Kenneth (table 7) and Mats (table 8), for example, both apply as their highest structure SVO. They share this behaviour with four other learners of grade 6 and 7 (Camilla, Gelika, Emily and Robin). In contrast to them, however, Kenneth and Mats produce the context for ADV; i.e. they produce sentences with an adverbial but do not yet put it in initial position. According to Pienemann (1998) learners go through a phase using the context before they can apply the rule. This suggests that Mats and Kenneth are developmentally slightly ahead the other four learners, being on the verge of acquiring the ADV processing procedure.

Interesting in tables 7 and 8 is also that the use of non-topicalised sentences predominates by far the use of topicalised sentences. In average 94% of all sentences uttered by the first year learners are of the structure SVO. The rate of the second year learners is 89%. That means that only 6% respectively 11% of the declarative main clauses are topicalised. Compare this with the proportion of topicalised and non-topicalised sentences in the production of native speakers of German and Swedish (40:60, cf. chapter 1.1) The distribution of topicalised and non-topicalised sentences in IL is clearly different from the one in native or target language.

Let us now have a closer look at the word order in sentences with a complex verb construction. As table 7 and 8 show, on the whole only eight learners of all twenty; i.e. 40% use a complex verb construction with a V-complement. Four of them (50%) use SEP; i.e. SVOV, at least once, the other 50% never. They use sentences of the structure SVVO. Caro in table 7, who uses SEP, displays a variable use: she also uses SVVO-structures. Sofie is the only informant who uses a topicalised sentence with a complex verb construction. It has the form of AVSVO and is discussed below. To summarise, of all eight users of a complex verb construction with V-complement four learners (50%) use sentences of the form SVOV (SEP) and five learners (62,5%) use sentences of the form SVVO and one learner uses the form of AVSVO. The number of SVVO and SVOV users hardly differs. It is thus difficult to decide which form is preferred.

7.2. Implicational Analysis

Let us turn now the quantitative distributional analysis into a qualitative implicational scaling analysis (DeCamp 1973). Through this procedure the systematicity in the individual and in the group as a whole can be displayed (Larsen-Freeman & Long 1991:110). It makes it also easy to deduce the respective proficiency level of the learner, given that the implicational scaling can present the implicational order of supplied word order rules.

In the implicational table, again, no evidence is marked by a diagonal stroke (/). A structure is given a plus (+) if it meets the emergence criterion or a minus (–) if it is not supplied in presence of context.

The emergence criterion implies, according to Pienemann (1998:137f), that a structure is considered to be acquired, as soon as it appears the very first time in the learner's production. Producing it even only once, s/he is able to process it in principle, likewise not at all times. Hence Pienemann considers the processing procedure to be acquired¹⁰. Yet it is important that if there is really only one example that this example is a productive one; i.e. that it is built by syntactic processing procedures and not produced through a single entry in the lexicon. Sentences like *How are you?* or *What's your name?* are in the beginning often learned as fixed unanalysed phrases and assumed to enter as one single entrance into the lexicon. Consequently, their production cannot tell anything about the ability to use syntactic procedures or word order rules. If there is reason to suspect that an utterance is a chunk, it is necessary to see if the same verb or noun is used in other constellations. This would indicate that the learner is able to demarcate the single components of the sentence. In the present data, sentences like

- (13) Johannes: Und dann der Junge waschen die Schlange
 and then the boy wash the snake
 'and then the boy washes the snake'

¹⁰ On the other hand Pienemann argues that an acquisition criterion which is build on a certain percentage supplied in obligatory contexts (for example Vainikka & Yong-Scholten 1994) gives arbitrary results. He shows that cross-sections at different percentage rates would result in different accuracy orders, depending on the acquisition speed of each learner for each structure (Pienemann 1998: 137f).

are unlikely to be a chunk, even though if they are, as in this case, the only evidence for the application of a structure (Johannes supplies a preposed adverb only in this sentence). There content is simply to unusual to have been learned as one chunk.

Now, let us look at the implicational scaling in table 9.

Table 9. Grade 6 and 7; implicational table

	1 SVO	2 ADV (initial)	3 SEP	4 INV
Caro	+	+	+	+
Zandra	+	+	+	+
Sofie	+	+	+	+
Johan	+	+	/	+
Peter	+	+	+	-
Karoline	+	+	-	-
Ceci	+	+	-	-
Matteus	+	+	-	-
Cecilia	+	+	-	-
Anna	+	+	/	-
Eduard	+	+	/	-
Erika	+	+	/	-
Sandra	+	+	/	-
Johannes	+	+	/	-
Mats	+	-	/	/
Kenneth	+	-	/	/
Camilla	+	/	/	/
Gelika	+	/	/	/
Emily	+	/	/	/
Robin	+	/	/	/

In the implicational table the informants are rank ordered along the vertical axis according to the number of structures that met the emergence criterion in their IL. Both the results of the first and second year learners are presented in table 10, the former in normal the latter in fat style. The structures are ordered along the horizontal axis with the one that was supplied most often occupying the left-most position, which is SVO with 20 suppliers. Next in line is ADV (14 suppliers) followed by SEP and INV (respectively 4 suppliers).

The result is obviously an implicational scale; i.e. the presence of, for example, SEP implies the presence of ADV and SVO. And once again it is clearly discernible that the rank of structures follows an implicational order.

The highest supplied structure presents consequently the learner's developmental level of word order acquisition. Accordingly, there are six learners at stage 1, nine at 2, one at 3 and four at 4. Even though the second year learners are of overall higher proficiency, this table shows neatly that there are some second year learners who are at the same level as some of the first year learners. Thus, the performance of the second year learners as a whole group displays a bigger variation than the one of the first year learners. A result, which is not only interesting for a potential teacher of grade 7, but which also demonstrates empirically, that the learners proficiency is not necessarily dependent on instruction time. The informants learn with different speed even though receiving the same instruction.

Since the data derives from a cross-sectional study, the implicational study does not actually display a development over time. So strictly speaking, there is no evidence that, for example, Zandra did acquire the word order rules in the presented order. Since however the results show an implicational relationship of the word order rules across learners, it can be hypothesised that the table also reflects an actual, individual, chronological development of these rules (Pienemann 1998:135; cf. footnote 8)

After considering a lot of different analyses of the whole data body, let us now look at some selected examples.

7.3. Analysis of Individual Utterances

Example 14 gives an idea, which form a dialogue between the informant and the interviewer could take. Cecilia is a first year learner.

(14) Cecilia: Dann er waschen eh der Schlange
 then he wash eh the snake
 'the he washes the snake'

Interviewer: Und dann?
 and then?

Cecilia: Vad heter torka?
 what means dry?

‘what does dry mean?’

Interviewer: Trocknen
dry

Cecilia: Der Mann trocken der Schlange dann
the man dry the snake then
‘the man dries the snake, then’

This example shows first of all, that Cecilia does apply in her first utterance a sentence with the structure ASV. She preposes *dann* but verb and subject are not inverted, as it would have been in her L1. Obviously there is no L1 transfer in this example. It is also interesting to see how Cecilia moves the adverb in initial and final position. In both cases the rest of the sentence stays as a block in the same SVO order. This example can be neatly explained by PT. In this theory it is an example of the second stage, ADV. The canonical word order is still maintained but due to the mechanisms of perceptual saliency the learner can identify positions outside the SVO sequence. Thus the adverb appears in preposed and final position.

Another example of the ADV stage is Eduard’s sentence 9, mentioned before in chapter 6.3. Here the adjective placement is particularly interesting. Even though adjectives are not on focus in this study, let us look at the sentence again:

(9) Eduard: Ja, als der Mann kams/comes ut [□t] von der Haus, der Mann eh seen eh der Schlange stor.

yes when the man comes out from the house, the man seen the snake big.

‘yes when the man leaves the house, he sees that the snake is big’

In the main clause the adjective *stor* appears in final position. This does not conform to the adjective placement in L1 or LN (in both cases the adjective appears before the noun). Transfer can thus not explain it; PT by contrast can. Again, as in example 14, the canonical word order SVO is maintained, while the adjective is put in the perceptual salient final position. It is an example for the second stage; ADV. Furthermore, sentence 9 is a clear example of an interlanguage sample. The placement of the adjective after the noun does neither exist in L1 or LN nor in the target language. It is obviously a developmental error.

Sandra in example 15 is also a first year learner.

- (15) Sandra: Und dann he waschen eh die Schlangen (English pronoun: he)
 and then he wash eh the snake
 ‘and then he washes the snake’

Sandra also preposes an adverb but does not invert subject and verb. There is again no L1 transfer. It is interesting that she displays a code-switch here; i.e. she uses the English pronoun *he*. Is this sentence then maybe an example of LN-transfer, possibly instigated by the use of an LN word? After all, the displayed word order corresponds to the English one. Let us consider in this context another example. Anna in example 16 is also a first year learner.

- (16) Anna: Und dann vi fönér han (Swedish: we dry him)
 and then we dry him

As Sandra in example 15, also Anna code-switches after the adverb. She switches to Swedish. Following the reasoning we adapted in example 15 we would expect to find this time an example of L1 transfer, instigated by the use of L1 words. This is however not the case. Anna does not apply Swedish word order in this sentence; she does not use inversion. This questions also the explanation of LN transfer in example 15. Let us consider another similar example. Karoline in example 17 is a second year learner.

- (17) Karoline: Och nu vi habe die Scheune (Swedish: and now we)
 and now we have the stable

Karoline starts her utterance in Swedish. She preposes an adverb. Yet in second position appears the subject and not as it would be in her native Swedish language a verb. Surprisingly enough, she starts producing an ungrammatical utterance speaking her native language. This is quite the contrast to L1 transfer even though the utterance started with L1 words. FT/FA cannot explain this example. PT however can: Even though using Swedish words, the learner intends to produce a German IL sentence. As a consequence she uses German syntactic processing procedures. Obviously however, she has not yet acquired the, for inversion necessary, completely developed S-procedure. Accordingly the processing is cut off which results in a canonical word order with preposed adverb. However even from a PT perspective the sentence is not so easy to explain completely. PT claims that the syntactical processing procedures are instigated by the activation of an entry in the lexicon. If now a Swedish lemma was activated, why does it not instigate the Swedish language-specific

syntactical processing procedures? PT does not give an answer to this question. It depends obviously on the idea how the lexicon is constructed, how the lemmas are annotated and if there is one cumulative lexicon for all languages.

For an illustration of that Swedish children can use inversions in their native language, consider example 18. Johan is a second year learner.

- (18) Johan: Eh det vet jag inte. Eh ich weiß nicht (Swedish: I do not know)
 eh that know I not. eh I know not
 'I do not know that. I do not know'

In the first utterance he obviously speaks Swedish using inversion. The example is also interesting considering L1 transfer. Even though Johan uses inversion in the first utterance, he does not 'translate' it to the next utterance in IL German, despite the fact, that they follow right after each other and mean the same. From a FT/FA perspective a surprising fact. Let us look at another utterance of Johan:

- (19) Johan: Und dann machen er. Und dann der Flecke geht auf
 and then make he. and then the spot goes away
 'and then he makes. and then the spot goes away'

This is a clear example of the variable use of a structure. Right after each other Johan uses an example of INV and of ADV. Again from a FT/FA perspective the data is difficult to explain. Why does the L1 parameter setting sometimes transfer, as in the first utterance, and sometimes not? If we speculate and suggest that the second utterance is instead due to LN-transfer, the question runs: When does L1 and when does LN transfer occur? PT however can explain these examples. Since PT motivates syntactical procedures through lexical activation, it could be argued that so far, only with part of the lexicon it has been learned to use the S-procedure. Johan is maybe able to use inversions with pronouns but not yet with noun phrases (Håkansson 2001).

Let us finally look at an example, which cannot easily be explained by PT. The relationship between SEP and INV is according to PT implicational. As stated in prediction d, if a learner uses inversion, s/he will also separate the complex verb construction. The main verb appears then in final position. In sentences, in which there is both an inversion and a complex verb construction this results in sentences, such as

- (20) Heute hat der Mann die Zeitung gelesen
 today has the man the newspaper read
 'today he has read the newspaper'

In one of Sofie's examples of inversion she also produces a complex verb construction. However she does not put the main verb into final position:

(21) Sofie: Und dann müsst er baden die Schlange

And then must he bath the snake

'And then he must bath the snake'

According to Processability Theory this sentence is impossible. Even if we take into account that the learners' capacity of processing may be variable in their overall production (i.e. sometimes they stop at, for example, INV, sometimes they stop already at a previous stage, as for instance Johan does in the two consecutive sentences in example 19), this sentence contradicts the hypothesis derived from PT. The reason is that in this case SEP and INV appear in the same sentence. The lack of SEP should block INV; as Pienemann and Håkansson (1999) state "The hierarchy will be cut off in the learner grammar at the point of the missing processing procedure and the rest of the hierarchy will be replaced by a direct mapping of conceptual structures onto surface form [...]"(p.384). Consequently Sofie should not have been able to use inversion as long as she cannot put the main verb into final position.

Looked at more closely, however, it turns out that in SEP and INV there are not two distinct processing procedures implied but the S-procedure, its simplified form and the general cognitive principle of perceptual saliency. Pienemann does not give a clear account of the differences between the S-procedure and the simplified S-procedure. If they are not two distinct processing procedures, but just variations of each other as their names indicate, the production of INV does not necessarily have to be blocked in the absence of SEP. There would be no processing procedure missing. The preceding processing procedure of INV would actually be the phrasal procedure, which is present in Sofie's example. Strictly speaking, this example would not contradict PT. This explanation of the sentence, however, undermines PT's claim of an implicational relationship between SEP and INV. Thus either way this example raises questions for PT.

This sentence, on the other hand, could be explained by L1 transfer. It reflects the Swedish word order:

(22) Och sedan måste han bada ormen

and then must he bath the snake

'and then he must bath the snake'

Unfortunately, Sofie's example is the only one in the whole data body in which a complex verb construction is used in a topicalised sentence. Thus it is impossible to infer any systematicity from its use.

The examination of individual sentences revealed that there was all in all not much evidence for L1 transfer. Even a code-switch to an L1 word did not instigate a transfer of L1 word order. Some sentences could be explained by LN transfer. This entailed, however, the question when LN and when L1 transfer was to be expected. Accordingly, the data could hardly be explained by FT/FA. On the other hand with PT all but one example could be analysed. Some questions turned up also concerning PT. These pertained the annotations of the lemmas in cases of code-switching and thus in a wider respect the construction of the lexicon. Furthermore, the implicational order of INV and SEP and PT's explanation for it were questioned.

Let us recollect the results of the analyses of the data body and summarise.

I. Did the informants use inversions? If so how is it distributed among the learners?

Of all twenty learners only four; i.e. 20%, used inversions. Sixteen learners; i.e. 80% did not use inversion. For ten of them there is clear evidence that they do not/ cannot use INV at all. They produce the linguistic context for INV but apply inversion in not a single case. Even of the four learners producing inversions, three do not/cannot produce them at each time a context is provided. All four suppliers of inversion are second year learners. That means that after 136 hours of instruction in German and being trained in applying inversions still six learners do not use inverted word order at all, even though around 40% of their native language and their target language consist of inversions. After 64 hours of German instruction none of the first year learners uses INV.

II. Did the informants use topicalised, uninverted structures (ASV)? If so how is it distributed among the learners?

Of all twenty informants thirteen; i.e. 65% produce the structure ASV that is ungrammatical in native and target language. Of them are six first year learners and seven second year learners. Of the four learners using inversion three are also using ASV. Disregarding the individual level and considering only the frequency of structure use, we can state that of all 49 topicalised sentences found in the data body 79,6% (or 39) display ASV

structure. Therefore the use of ASV structures is in clear majority whilst the use of inversions happens only in the minority of cases, considering the individual or general level.

III. Does the application of word order rules follow an implicational order?

As far as there is evidence it does. There is no single exception of the order.

IV. What structure do sentences with a complex verb construction have? And how are they distributed in the data?

Of all eight learners who use a complex verb construction with V-complement four learners (50%) use sentences of the form SVOV (SEP) and five learners (62,5%) use sentences of the form SVVO. The number of SVVO and SVOV users hardly differs. There is no clear preference of one of the forms. Only one sentence with complex verb construction is topicalised. It has the form AVSVO. Because of its singularity no production pattern can be deduced from it.

Let us now see what these results imply for the hypotheses and predictions derived from Processability Theory and the Full Transfer/Full Access Model.

8. Discussion

The results of the present study clearly confirm the hypotheses derived from PT. The transfer hypothesis derived from FT/FA, by contrast, was not supported by the data. Let us look at the predictions made in chapter 5 in more detail.

8.1. The Predictions

FT/FA's prediction a; i.e. that there will be inversions, foremost in the production of the first year learners and that there will not be any structures of the form ASV,

was disconfirmed. Even though some inversions were found in the data body, their appearance was rather an exception than the rule. None of the first year learners produced the form. The majority of topicalised sentences had instead the very form of ASV.

Prediction b, claiming that there will be more SVVO than SVOV structures, could neither be strengthened. The data did not show a preference for head-initial structures. There were about as many SVVO as SVOV users.

Considering Processability Theory, on the other hand, the picture is quite reverse. Prediction (c), telling that there will be ASV forms and that INV will rather appear with second than first learners, was clearly confirmed. ASV structures were not only existing but even common. Likewise, the data showed that only second year learners used INV. None of the first year learners produced the form.

One example was found which contradicted prediction d, that the complex verb construction will be separated, when an inversion is applied (i.e. SEP is acquired before INV). Since there was however only a single contradiction in the whole data body, it is difficult to draw any principle conclusions from its appearance. The implicational scaling on the other hand showed, that all informants of this study follow the predicted implicational order of word order rule acquisition in their overall production. Here it was shown that SEP was acquired before INV. There was not a single exception. The strongest possible evidence for the developmental stages in German word order acquisition is thus supplied by the implicational analysis.

Which impact do these findings have now on the theories under investigation?

8.2. FT/FA

The clear refutation of the hypotheses derived from FT/FA strongly questions the idea that there is a “full transfer” of the L1 grammar to the L2 grammar. Admittedly there are some learners in this study who do use inversion. But even these cannot be undisputedly be ascribed to transfer. The fact that all second year learners were also trained in the application of this structure does open up the possibility that they rather learned than transferred the structure. This is however methodologically impossible to clearly determine (Håkansson, Pienemann & Sayehli in press).

However, if we consider the additional fact that FT/FA claims transfer to occur in an initial stage of SLA, it is even more questionable that the samples of inversion found in

the data could be due to transfer. How long this initial state is ever claimed to be, it should have been the first year learners supplying inversions. After all they are of the two learner groups closest to the initial state. However, as the analysis demonstrated, it is exactly vice versa: none of the first year learners uses inversion in only so much as a single time.

Considering the lack of empirical evidence for FT/FA in the present study, it might be useful to look at the empirical material the FT/FA Model is originally built on. The FT/FA model base their model empirically on the longitudinal study of one Turkish learner of German, Cevdet, who had stayed in Germany for nine months, when the elicitation sessions were started. Being a native speaker of Turkish, his native language has a basic SOV form. According to Schwartz and Sprouse, the headedness of the verb phrase was transferred to his German production, resulting right from the start in an SOV headedness of the verbal phrase in his German IL. However, this structure was never found in their data. Cevdet production, as far as it is presented by Schwartz and Sprouse, follows the implicational order predicted by PT. As they themselves admit, Cevdet's earliest data "already exhibit[s] finite-verb fronting; i.e., the finite verb is not in clause-final position as it would be in Turkish" (Schwartz & Sprouse 1996:44). Instead they refer to another study of Turkish GSL learners (Vainikka and Young-Scholten 1994), in order to support their argument. Concerning Cevdet's data they simply assume that the missing structure which actually was suppose to support their Full Transfer thesis, is simply a gap in Cevdet's data.

It is methodologically questionable to assume empirical evidence, when it is actually missing, especially when the invisible data is a core support of the theoretical argumentation. It makes it impossible to find a scenario in which FT/FA could be empirically questioned. Thus it loses on grounds and finally of importance. PT, by contrast, has no problems to explain Schwartz and Sprouse' data even without these methodological questionable operations, which clearly favours a PT approach.

Generally, it would be of advantage if FT/FA were more explicit in predicting when, which form of transfer does occur. It is neither clear how the initial stage is defined; i.e. how long or short it is (This plays a decisive role in the question of how long it is possible to assume invisible transferred structures which are gaps in the empirical data. If there are no such definitions, even in the present study, it could be argued, that in an initial state all learners used inversion, but that this capacity disappeared for some reason or another again later on. Even though this argumentation might be accused to be a far fetched fantasy, it is still possible in the present state of FT/FA), nor is it clear to which degree the production allows for variability; i.e. how is it explained that there is and there is sometimes no transfer.

This became evident looking at the individual examples, when there were structures, which could be ascribed to transfer right next to structures, which could not. Being general but unexplicit, FT/FA has the disadvantage to be difficult to deduce clear predictions from, which could be tested. It turns itself rather uninformative. Now there is much space left for speculations, as for example the following.

8.3. LN Transfer

The structures, which do not fit into the L1 transfer hypothesis, could be samples of LN transfer instead. The structure of ASV corresponds to the English LN structure. All clauses of the form SVVO with a complex verb also correspond to the LN (even though also to the L1). Some researchers suggest and many language teachers are convinced of that the LN really does have an influence on the acquisition of an L2. So this argumentation would be close at hand.

In the SLA literature it is indeed sometimes claimed that the acquisition of a first foreign language is qualitatively different from the acquisition of any further foreign language (e.g. Hufeisen 1998, Groseva 1998). The fundamental difference is claimed to be the fact that the third (etc.) language learner was able to obtain language learning experiences and strategies from the learning of his previously learned language(s), something to which the learner of a first second language had obviously no opportunity. It is however unclear of what these strategies and experiences consist. Thus also Groseva (1998) admits that there exists so far no systematic research on or description of L3-characteristics. As a consequence they remain so far rather speculative.

If we nevertheless assume that the above-mentioned structures are incidences of LN transfer, the question runs when L1 and when LN transfer will occur? How does it come that sometimes L1 and sometimes LN transfers? Furthermore, as we saw in the ambiguous example of the structure SVVO, how can it be decided, which transfer underlies it, L1 or LN?

Trying to clearly determine what is due to transfer, however, is a common problem dealing with transfer. It is difficult to find criteria that can unambiguously define which part of the learner's production is due to transfer (Braidt 1999:42). Let us look at a telling example. Spanish allows in contrast to English and German to drop the personal pronoun in a sentence (*recibimos mucho dinero* = we get much money). A Spanish learner of German is found to produce subjectless German sentences as **kriegen viel Geld* (= *get much

money) (Clahsen, Meisel & Pienemann 1983). This could be explained as an incidence of transfer. However also English learners of German are reported to drop the subject, as in **ist Guys Ball* (= **is Guy's Ball*). The fact of dropping the subject can here not be explained as resulting from transfer (Felix 1980 in Braidt 1999:42). To produce subjectless sentences in German L2 seems rather to be a developmental error than a sign of transfer.

This example illustrates how important it is to compare the production of the same L2 from learners with different L1s. It stresses the point made by Håkansson (2001) that incidences of transfer can be confidently demonstrated only if the interlanguages of different L1 speakers vary systematically. Moreover, it stresses the fact that the relationship between process and product is not as clear as it may seem. The same product can have different underlying processes (Faerch & Kaspar 1986). It is obvious that it is rather difficult to identify transfer in a principled and clear-cut manner and obviously every product has to be interpreted –as Braidt (1999:42) puts it- “with care”.

8.4. PT

Quite in contrast to the confusing scenario, which a transfer explanation leaves the data with, the data found in this study supports almost unanimously Processability Theory. Not only did the analysis of the overall data body strengthen its claims but also the analysis of the individual examples. The properties under investigation in this study were obviously acquired following an implicational order irrespective of the native language. The V2 property did not transfer from Swedish. This corresponds to and is strengthened by the results of the study of written data by Håkansson (2001).

However, thinking about the relationship of product and process discussed in the previous chapter, the present study supports strictly speaking merely the stability of the ZISA results even for Swedish L1 speakers and not necessarily PT's explanations. If the underlying process of the product corresponds really to the hypothesised development of processing procedures can be questioned. However, it is one possible explanation. Given that fact, that PT was also supported by data coming from different L1s (e.g. Japanese) and also made confirmed predictions concerning the acquisition of L2 German morphology (Pienemann 1998), there are many studies which argue for the relevance of PT and thus validate an interpretation of the given data in the light of PT.

In addition two new questions were raised regarding PT. First of all, what is hypothesised to happen with the processing procedures in case of code switching. If a L1 lemma is activated does it instigate the L1 processing procedures? Why then did Anna in example 16 not use inversion, even though she was speaking Swedish? If on the other hand the L1 processing procedures are not activated while an L1 lexical item is, how can it be processed? Example sentences 15, 16 and 17 obviously raise questions concerning the internal construction of the lexicon, how L1 and L2 lexicon are connected and how the processing procedures are instigated.

Secondly it was questioned how a structure of the form AVSVO can be explained. Explaining it by the fact that INV has not to be blocked when SEP is lacking, since no two different processing procedures are implied, but only S-procedure and the perceptual saliency principle, questions PT's claim of an implicational relationship between INV and SEP.

All in all, this study indicates that L1 transfer plays hardly any role in the SLA of syntax. It was clearly shown that the informants did not use L1 transfer in their acquisition of German word order. In the whole data body, there was only one single example, Sofies utterance of the form ASVSO, which could support a L1 transfer hypothesis. Still the question has to be risen why transfer of inversion from L1 to L2 did not occur. All pupils (even the one in grade 6) were explicitly made aware of the similar structure in German and Swedish. If they had not been able to deduce the similarity from the input, at least they should have realised the fact now and in the following they should have applied inversion, - one could argue. The fact that they do not use it is definitely a strong argument against any L1 transfer hypothesis.

PT on the other hand can explain this rather uneconomical and counter-intuitive behaviour. Obviously, at this stage, the learners could not regard the advice of their teachers to use transfer (Pienemann's teachability theory 1989). Developmentally they were not yet ready to process inversions in their IL. Thus they could neither regard their teachers instructions nor could they take advantage of the similarity between their native language and their target language. That is not to say that at a later point the L1 will not help to acquire and use the respective processing procedure faster. A study by Zobl (1980a in Braid 1999:46) indicates, for example, that learners stay longer in a developmental stage as soon as the L1 structure is similar to the developmental one. But then the influence of the L1 in syntax is not assumed to be a structural but rather a temporal one.

9. Conclusion

The present study is the first study that provides oral data from a language acquisition context in which both L1 and L2 were V2 languages: the oral production of Swedish learners of German. This constellation was especially fruitful to test predictions, derived from theories about transfer in syntax. Thus it could be shown that the L1 does not play a decisive role in the acquisition of word order, which is contrary to the claims made by the Full Transfer/Full Access Model. Instead the study supported Processability Theory, which holds that the acquisition of syntax is constraint by cognitive processing procedures. These determine which structures can be processed and thus shape the development in a fundamental way. Compared to this L1 transfer has if rather a minor influence in SLA of syntax.

10. References

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11. Appendix

I. Transcript and Coding

\$ Zandra, Caroline, Susan

+ Sandra and Caroline are both in grade 7, second year German

+ they are both 13

C Er hat eh {.} längtat [SV][Sab].

S Vermisst.

C Vermisst die eh Tier.

C Und dann kramen der Mann die Tier [AVS].

C Und die Mann (sch*) eh svimmar [SV].

Z Schwimmen {whispering}.

C Svimmen.

Z x x x {laughing}.

S Schwimmen?

C Nej eh svimmar.

S Ah, ohnmächtig like {gesture: fainting}>

C <Mh>.

Z <Mh>.

\$ = speakers

+ = information about speakers

= = context inbetween utterances

> = self interrupted utterance

^ = interrupted by an interlocutor

() = false start, reformulation

<> = simultaneously uttered

{ } = comments as gestures, voice quality, pronunciation

{.} = pause

* = word broken off

x = unintelligible word or utterance

Coding of word order in non-Swedish utterances
with a subject and a verb
(only declaratives)

S = Subject

V = Verb

A = Adverbial

a = finite verb

b = non-finite verb

X = other elements

II. Results

	Caroline	Zandra
declarat., main clause with S/V	3	0
[SV]	2	0
[SVA]	0	0
[ASV]	0	0
[AVS] = inversion	1	0
[Sab]	1	0
[SabX]	0	0
[SaXb] = verb separation	0	0
[XSab]	0	0
[XaSb] = verb sep. + inversion	0	0
[XaSbX]	0	0

