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## Can elicited imitation be used to measure grammatical development?

A cross-sectional study of L2 Swedish within the framework of the Processability Theory

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## Abstract

The aim of the thesis was to examine whether or not the elicited imitation test can be used as a valid tool for measuring developmental sequences of grammatical structures in the production of L2 Swedish derived from the Processability Theory (PT, Pienemann, 1998). The thesis aimed to answer the following questions: *Will the participants follow the predicted implicational pattern of the developmental stages of PT in both the elicited data and the free production data? If they do not, are there any differences between the participants' results of the elicited data and the free production data? Are there any participants who can process a later stage without a prerequisite stage in the two sets of data?* The elicited data was collected by recording nine L2-learners of Swedish imitating 29 model sentences pre-recorded by an L1-speaker of Swedish. The sentences include grammatical structures of stages 2-5 of PT i.e. tense marking on the verb (stage 2), attributive agreement (stage 3), predicative agreement and inversion (stage 4), and placement of the negator and differentiation of main clause and subordinate clause word order (stage 5). The participants were all students of L2 Swedish at Lund University, who had studied Swedish for a little more than one month to a little more than six years. The participants also supplied one student paper from their L2 Swedish-classes, which constitute the free production data. The free production data was analysed for the same grammatical structures as the elicited data in order for a comparison to be carried out. The results of the elicited imitation data and the free production data demonstrate that the elicited imitation test can provide information about grammatical structures which may not be present in free production data. Results such as an order of emergence of predicative agreement and inversion found in free production data cannot be found in elicited imitation since stimuli of the structures are provided in this data. While it is indicated that the elicited imitation test used in this thesis needs further modification in order for it to function as a standalone measurement of L2-learners' development of their interlanguage grammar, the test is found to be a suitable complement to free production data. The results do not exclude the potential of creating such an elicited imitation test for the future of second language acquisition research.

*Keywords: Processability theory, Elicited imitation test, Free production, Second language acquisition, Swedish as a second language*

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## Abbreviations

AUX	Auxiliary
ADJ	Adjective
ADV	Adverbial
Attr	Attributive agreement
COP	Copula
DEF.ART	Definite article
IL	Interlanguage
INDEF.ART	Indefinite article
INF	Infinitive
INV	Inversion
L1	First Language
L2	Second Language
MC	Main clause
N	Noun
NP	Noun Phrase
O	Object
OR	Object relative clause
ORNeg	Negated object relative clause
PL	Plural
Pred	Predicative agreement
PT	Processability Theory
SC	Subordinate clause
SG	Singular
SLA	Second Language Acquisition
SLI	Specific language impairment
SR	Subject relative clause
SRNeg	Negated subject relative clause
SSL	Swedish as Second Language
S/SUBJ	Subject
TL	Target Language
V	Verb
VP	Verb Phrase
V2	Verb Second
X	Adverbial, Object, Predicative

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## 1. Introduction

“It might be possible to design an Oral Imitation Test to measure learners’ implicit knowledge of grammatical features that have been carefully chosen to represent the different processing procedures that Pienemann has shown to characterize L2 development.” (Ellis, 2008:17)

An elicited imitation test as the one described in the above quote could, if possible to create be used as a shortcut, leaving second language acquisition researchers with a quick and easily administered instrument at their disposal. In order to investigate the potential of the elicited imitation test by itself being a useful instrument in language acquisition research, this thesis will compare two types of data: elicited imitation data (oral data) and free production data (written data), by testing predictions of grammatical development of L2 Swedish derived from the Processability Theory (PT; Pienemann, 1998). This implies that two different types of data will be compared, but Håkansson and Norrby (2007:91) found in their study of Processability Theory applied to both written and oral L2 Swedish that the informants did not perform at higher PT stages in the written data than in the oral data. Further, according to Håkansson (2013:116) the informants are not able to stretch their interlanguage so it would contain higher levels in written data than in oral data.

The Processability Theory (1998), which will be discussed in detail below, has been widely used to determine developmental sequences in second language research. Data is normally collected from spontaneous speech (e.g. Pienemann, 1998), but written data has also proved to successfully provide a basis for PT studies (e.g. Håkansson and Norrby, 2007, 2010; Philipsson, 2007; Rahkonen and Håkansson, 2008). The field of application widened even further by Schönström’s (2014) study on deaf children, which include a group of learners who learn their L2 (Swedish) only in written form. The above studies demonstrate the usefulness of written data, which is the source of the free production data examined in this study; the other is the elicited data, collected by means of an elicited imitation test. Elicited imitation is a well-researched method (e.g. Ellis, 2005, 2006, 2008; Erlam, 2006; Håkansson and Hansson, 2000; Sayehli, 2013, Vinther, 2002), but also a widely debated method.

The aim of the thesis is to investigate if an elicited imitation test by itself can be used as an instrument for measuring developmental sequences of L2-learners’ interlanguage grammar as suggested by Ellis (2008). Ellis’ (2008) study indicates that elicited imitation can be a valid measure

of implicit knowledge. Ellis' (2008) suggestion is opposed by Pienemann (2015), who supports his claims that elicited data is not comparable to spontaneous data, and that the different types of data involve different psycholinguistic mechanisms, with the results of a study in Pienemann, Keßler, and Lenzing (2013).

This thesis will, however, include and compare both elicited and free production data of the same grammatical structures of L2 Swedish in order to examine the potential of the elicited imitation as a standalone instrument for measuring language development. The grammatical structures represent stages 2-5 of the Processability Hierarchy (Pienemann, 1998; Pienemann and Håkansson, 1999; Håkansson, 2013b).

The initial aim of this thesis was to examine relative clauses in the production of L2-learners of Swedish. The relative clauses of PT stage 5 were to be elicited by the means of an elicited imitation test (EI), which also includes prerequisite PT stages (2-4) in order to verify that the participants were able to process these stages. It was later decided to include these stages in the analysis, due to the insufficient amount of data generated by the relative clauses. The insufficient amount of data also resulted in that a decision to include free production data i.e. one student paper from each of the participants (written data) as well, was made. The decisions to include the written material and the structures of the prerequisite PT stages (2-4) were taken after the data had been collected. Due to this change in focus a few things should be noted: the amount of structures of the different stages varies significantly i.e. there are fourteen structures of stage 5, six structures including inversion and four including predicative agreements (stage 4), and seven containing attributive agreement (stage 3). Stage 2 is not affected since all sentences of the elicited imitation test contain tense marked verbs.

With this new focus in mind the following questions are to be addressed:

- Will the participants follow the predicted implicational pattern of the developmental stages of PT in both the elicited data and the free production data? If they do not, are there any differences between the participants' results of the elicited data and the free production data?
- The study will also examine whether there are any participants who can process a later stage without a prerequisite stage/stages:
  - Are there any participants who can process stage 5 but not stage 4?
    - a) in the elicited imitation data
    - b) in the free production data
  - Are there any participants who can process stage 4 but not stage 3?
    - a) in the elicited imitation data
    - b) in the free production data

The disposition of this thesis is as follows: chapter 2 includes a theoretical background, and previous research relevant to this thesis. Chapter 3 discusses the method in terms of participants, data collection and data analysis. Chapter 4 present the results of the two data collections, which are then discussed in chapter 5. Finally, in chapter 6, possible conclusions are put forward.

## **2. Background**

In the following chapter previous research, the Processability Theory (PT; Pienemann, 1998), the grammatical structures to be analysed, implicit and explicit knowledge, elicited imitation, and experimentally elicited data will be presented. To begin with previous research relevant to the just stated research questions is presented, followed by a description of Processability Theory (Pienemann, 1998) and Swedish from a PT perspective along with the grammatical structures, which are to be analysed in this study. After the theoretical description and the presentation of the grammatical structures comes a section regarding implicit and explicit L2 knowledge, followed by two different viewpoints on the elicited imitation: Ellis (2008) and Pienemann (2015), and a section regarding experimentally elicited data. Finally, an overview of the elicited imitation as an instrument of testing language acquisition is presented.

### **2.1. Previous research**

Second language acquisition (SLA) is a well-researched area with a vast amount of studies carried out on L2 Swedish (e.g. Pienemann & Håkansson, 1999; Håkansson, 2001). This is also the case regarding research on elicited imitation tests (e.g. Ellis 2005, 2006, 2008; Erlam 2006; Håkansson and Hansson, 2000; Sayehli, 2013; Vinther, 2002). There is, however, not much research carried out on the use of elicited imitation tests as an exclusive instrument of measurement of development sequences of L2-learners derived from Processability Theory. Ellis (2008) suggests that elicited imitation can be used to examine the development of interlanguage, i.e. the implicit knowledge of the learners. Erlam (2006) has also carried out studies using elicited imitation to measure implicit knowledge of L2-learners. In her extensive research on L1, L2 and SLI children, i.e. children with specific language impairment, Håkansson (e.g. Håkansson and Hansson, 2000) has also used elicited imitation tests. The research has mostly been carried out using oral production. Sayehli (2013) also includes elicited imitation as one of five tasks in her doctoral dissertation, in which she studied developmental perspectives on transfer in the acquisition of an L3. As will be discussed in more detail below, the Processability Theory is most commonly used in studies of oral data, but it is also used in studies of written data. Håkansson and Norrby (2007, 2010), Norrby and Håkansson (2007); Philipsson (2007), Rahkonen and Håkansson (2008), and Schönström (2014) have performed studies on written material for L2 Swedish.

Håkansson and Norrby (2007, 2010) and Norrby and Håkansson (2007) examined L2-learners in both second and foreign language settings. The L2-learners in Sweden were students at Malmö University, who studied L2 Swedish, and the L2-learners outside of Sweden were students at the University of Melbourne, who studied L2 Swedish in a foreign language setting. In Håkansson and Norrby's study both oral and written material were analysed within the PT framework. The free production was collected at three occasions for a period of one year, using specifically designed translation tasks and free compositions (Håkansson and Norrby, 2010: 635). The designed tasks provided obligatory contexts whereas the free compositions enabled the students to use other forms than those relevant when analysing from a PT-perspective. The results of the study proved that PT is an effective tool in analysing L2-learner's written performance.

Philipsson (2007) studied interrogative clauses and verb morphology in L2 Swedish using four different kinds of elicitation techniques to collect the data: oral production, written production, grammatical judgement, and receptive skills task. The data was analysed with a point of departure in both the Markedness Differential Hypothesis (Eckman, 1977) and the Processability Theory (Pienemann, 1998) in order for a comparison of both theories' ability to make predictions about the grammatical structures. The results show that there are implicational relationships regarding the acquisition order of the examined structures, and that the predictions and results do not contrast the theories. The result of the written production data support PT, at least in regard of the emergence criteria (Pienemann, 1998).

Rahkonen and Håkansson (2008) studied the acquisition of L2 Swedish within the PT framework in free production (student essays). The participants were Finnish-speaking students in Finland and adult learners of L2 Swedish in Sweden. A distinction between formal and semi-formal learning was also made i.e. the Finnish-speaking students underwent formal learning in a classroom environment whereas the Swedish immigrants underwent semi-formal learning mostly outside a classroom environment. In regard to whether the free production followed the developmental sequences predicted by PT, the results showed that the structures did appear in the predicted order, but that the structures of stage 4, inversion and predicative agreement, did not emerge at the same time. Rahkonen and Håkansson (2008) raise the question of the role played by input frequencies and overgeneralization of L2-structures in regard to Swedish subordinate clause word order. Overgeneralizations in stage 5 structures can be the use of main clause word order in subordinate clauses. This could be explained by the learner initially concluding that there is no difference in word order between main and subordinate clauses since many subordinate clauses in Swedish have the same word order as main clauses (Rahkonen and Håkansson, 2008:153). Rahkonen and Håkansson (2008:155) present a plausible, at least partial, reason for the late emergence of the preverbal negation and SV word order of subordinate clauses in the frequency of input. Furthermore, in both data sets predicative agreement and inversion, which are to emerge simultaneously, appear in the order: inversion first, predicative agreement second. According to the authors it might very well be that the nature of the two structures

are so different that they should perhaps not belong to the same processing stage i.e. stage 4 (Rahkonen and Håkansson, 2008:150).

Krister Schönström (2014) studied the written production of deaf L2-learners of Swedish, with Swedish Sign Language as their L1, using the PT framework when analysing the development of grammar of these students. The results showed that the deaf L2-learners also followed the developmental sequences of PT, and that their development in regard to the emergence criterion was implicational and supportive of PT (Schönström, 2014: 81). The results of this study widened the field to which PT is applicable. Initially, the theory solely addressed oral data, but has since then expanded to include written data as well, as can be seen in the above mentioned studies by Håkansson and Norrby (2007, 2010), Norrby and Håkansson (2007), Philipsson (2007), and Rahkonen and Håkansson (2008). The study of Schönström (2014) widens the range of application even further by including a group of learners, who learn their L2 only in written form.

## **2.2. The Processability Theory**

The Processability Theory (PT; Pienemann, 1998, 2001, 2005, 2015) is a psycholinguistic theory frequently applied within the field of SLA research with its origin in cognitive linguistics. The Processability Theory deals with language development and aims at explaining developmental phenomena of the dynamics of interlanguage (IL). Therefore, the aim of the Processability Theory is to establish the order in which the procedural skills are developed in the L2-learner (Pienemann and Håkansson, 1999:386). According to PT (1998:215), the basis of acquiring a second language is the acquisition of these procedural skills, which are required for the processing of language. Once these procedural skills are automatized they are much the same in native speakers and (skilled) non-native learners, who then of course have acquired the necessary skill. Non-native speakers, who have not yet automatized the required skill, will however not process a certain linguistic structure in the same similar way. Pienemann (2001) refers to this hypothesis as the Procedural skill hypothesis.

Before the description of the Processability Theory is further developed, an often cited quote from the first volume of PT (1998) is presented:

“The architecture of human language processing therefore forms the basis for Processability Theory. It will be argued that language acquisition incorporates as one essential component the gradual acquisition of those very computational routines. In other words, the task of acquiring a language includes the acquisition of the procedural skills needed for the processing of the language. It follows from this that the sequence in which the target language (TL) unfolds in the learner is determined by the sequence in which processing routines develop which are needed to handle the TL’s components.” (Pienemann, 1998:1)

PT is based on the speech production model in Levelt (1989). The model, sets out from the intention of articulation in the Conceptualizer, and moves towards the Articulator, via the Formulator, which contains the Grammatical Encoder and the Phonological Encoder. However, the starting point of PT begins at the point in which the speaker has conceptualised the intended statement and has constructed a preverbal message which is to go into the Formulator. The grammatical encoding i.e. the processing of morpho-syntactic structures, which is the focus of Pienemann, takes place in the Formulator (Pienemann, 1998:54-55). For further reading regarding Levelt's *Speech Production Model*, see Levelt (1989) or e.g. Pienemann (1998).

A set of key grammatical encoding procedures are arranged in the order of their activation in the language generation process, and the theory shows that this rank of order follows a pattern where the previous procedure is a prerequisite for the following procedure i.e. an implicational pattern. The processing procedures are presented in Table 1.

Table 1. Language generation processes

<b>Processing procedures</b>
<b>1. lemma/word</b>
<b>2. category procedure (lexical category)</b>
<b>3. phrasal procedures (head)</b>
<b>4. S-procedure and word order rule</b>
<b>5. matrix/subordinate clause</b>

After Ellis (2008: 9)

To demonstrate the implicational nature of processing procedures, a table from Pienemann (1998:8), and Pienemann and Håkansson (1999: 392) is provided in Table 2 below. The implicational relationship of the processing procedures begins with words being accessed from the learner's lexicon. To the words, morphological features are added and the Category procedure is consequently called for. In its turn, the Categorical procedure is followed by the Phrasal procedure where e.g. agreement within the phrase is claimed. The Phrasal procedure is a prerequisite for the S-procedure where e.g. inter-phrasal agreement is called for. The last processing procedure is that of subordinate clause procedure. PT assumes that it is only possible for a learner to acquire linguistic forms and functions which are processable to the learner (Pienemann and Keßler, 2011: 27). If an element is missing, PT (Pienemann, 1998: 7) predicts that the hierarchy will be discontinued in the learner grammar at that point in the development.

Table 2. Implicational table of processing procedures

Procedures	Order of development				
	1	2	3	4	5
<b>Subordinate clause procedure</b>	-	-	-	-	+
<b>S-procedure</b>	-	-	-	+	+
<b>Phrasal procedure</b>	-	-	+	+	+
<b>Category procedure</b>	-	+	+	+	+
<b>Word or lemma access</b>	+	+	+	+	+

After Pienemann (1998: 8); Pienemann and Håkansson (1999:392).

Processing procedures constitute a universally applicable hierarchy, which is the core of the Processability Theory – the Processability hierarchy. According to PT the L2-learner’s ability to process i.e. to treat and convey grammatical information, both morphological and syntactical information, within phrases and between phrases, clauses and sentences, develops in a certain order. This order is, as previously stated, called the Processability hierarchy, a hierarchy which is considered common to all L2-learners irrespective of what the L1 is. Furthermore, from the hierarchy it is possible to predict structural target language outcomes. This will be explained in more detailed in relation to Swedish (see Table 4.)

Table 3. Processing procedures and structural outcome

Processing procedures	Structural outcome
<b>Subordinate clause procedure</b>	<b>Main and subordinate clause</b>
<b>S-procedure</b>	<b>Inter-phrasal information exchange</b>
<b>Phrasal procedure</b>	<b>Phrasal information exchange</b>
<b>Category procedure</b>	<b>Lexical morphemes</b>
<b>Word or lemma access</b>	<b>Words</b>

After Pienemann (1998:9)

In order for the hierarchy to be universally applicable to language acquisition, and to predict target language outcomes, it has to be treated through a theory of grammar. For this task PT utilizes Lexical Functional Grammar (LFG), a theory developed by Bresnan and Kaplan in the 1970s that belongs to the unification grammar family since its main characteristics is the unification of features. Unification of features is, put somewhat simplified, a process which makes sure that the different components of a sentence fit together (Pienemann and Håkansson, 1999: 392). For further reading regarding LFG, see e.g. Bresnan (1982), or Bresnan and Kaplan (1982).

As can be concluded from the description of PT, the theory is not language specific, and it has been tested on several typologically quite different languages, such as Arabic, Chinese, English, German, Italian, Japanese, and Swedish (cf. Pienemann, 1998).

Automatic processing procedures in language production employ procedural knowledge or procedural memory; the terms are used interchangeably within the SLA literature. Procedural knowledge/memory is dissociated from declarative knowledge/memory, which relate to all that can be represented consciously (Pienemann, 1998: 4). Consequently, PT measures what Pienemann refers to as procedural knowledge/memory, and what Ellis, among others, refers to as implicit knowledge. Within the field both terms are frequently utilized.

### 2.3. Swedish from a PT-perspective

Pienemann and Håkansson (1999:398) and Håkansson (2013b:154) suggest five processability stages for Swedish which are summarized in Table 4. Further explanations of these five stages in relation to Swedish are provided below.

Table 4. Model for Swedish

Stage	Underlying procedure	Example from Swedish Morphology	Example from Swedish Syntax
Stage 5	Grammatical information between clauses. Difference between MC and SC		Negator after finite verb in MC and before finite verb in SC
Stage 4	Grammatical information between phrases	Predicative agreement	Inversion after a preposed non-subject
Stage 3	Grammatical information within the phrase Phrasal information	NP agreement, VP agreement	Initial adverbial/object and SV-word order
Stage 2	Word class, lexical morphology	Plural suffixing, past or present tense on verbs	Canonical word order (often Agent before Action/Subject before verb)
Stage 1	Words	Invariant forms	Single constituents

After Pienemann and Håkansson (1999:404), and Håkansson (2013b:154)

Stage 1 – At this first stage the learner is accessing words of the target language. The words are invariant; they are not inflected for number, definiteness and so forth, and utterances are made up by single constituents.

Stage 2 – At this stage the learner can process word classes with proper lexical morphology e.g. add plural suffixes to nouns (hund-hund**ar**) and tense markings to verbs (kasta-kast**ar**/kast**ade**). Overgeneralization of suffixes, such as *-or*, *-ar*, *-n* and *-Ø* in Swedish, is quite common in languages where several suffixes have the same function. An example of an overgeneralization of noun



b. * <i>Några vita hundar</i>	<i>pojken</i>	<i>såg</i>	<i>leka</i>	<i>igår.</i>
O	SUBJ	V (finite)	V (non-finite)	ADV

Some white dogs the boy saw play yesterday.

In Swedish, these structures must be followed by the verb in second position: the V2-rule, for the sentences to be grammatical. It is, however, common to see structures such as in (3a) and (3b) above, in interlanguage production (Pienemann & Håkansson, 1999: 404).

Stage 4 requires that the learner can process grammatical information between phrases and therefore manage predicative agreement i.e. inflect adjectives following a copula verb so that the adjective agrees with the subject:

(4)	a. <i>Hund-en</i>	<i>är</i>	<i>svart</i> ∅
	DOG.SG.DEF	COP	ADJ
	The dog is black.		
	b. <i>Hund-ar-na</i>	<i>är</i>	<i>svart-a</i>
	DOG.PL.DEF	COP	ADJ.PL
	The dogs are black.		

At stage 4, the learner can also apply the V2-rule, i.e. use SV word order when the subject is clause initial, but inversion when an adverbial/object is clause initial.

Initial adverbial (inversion XVS):

(5)	a. <i>Igår</i>	<i>såg</i>	<i>pojken</i>	<i>några vita hundar</i>	<i>leka.</i>
	ADV	V (finite)	SUBJ	O	V (non-finite)

Yesterday the boy saw some white dogs play.

Initial object (inversion XVS):

b. <i>Några vita hundar</i>	<i>såg</i>	<i>pojken</i>	<i>leka</i>	<i>igår.</i>
O	V (finite)	SUBJ	V (non-finite)	ADV

Some white dogs saw the boy play yesterday.

(It is worth noticing that the last sentence is (in Swedish) ambiguous in meaning; the boy and the white dogs can both be interpreted as the subject or the object).

Inversion is also found in yes/no questions such as in 5c below.

c. <i>Har</i>	<i>de</i>	<i>inte köpt</i>	<i>några vita bilar</i>	<i>idag?</i>
V (finite)	SUBJ	neg V (non-finite)	O	ADV
Have they not bought any white cars today?				

Stage 5 – At this stage the learner can process grammatical information between clauses. This stage consists of two steps: the first is where the learner can differentiate between the word order of main and subordinate clauses and place the negation before the finite verb in the subordinate clause: Neg + V, (and after the finite verb in the main clause: V + Neg), and the second is where the learner can place the negation before the auxiliary verb: Neg + AUX + V in subordinate clauses (and the negation after the auxiliary verb in main clauses: AUX + Neg + V). In the following examples the auxiliary and main verbs are presented in bold together with the negation, and the subordinate clauses are presented within square brackets.

(6)	Step 1.	MC:	<i>Flickan</i>	<b><i>kramade inte</i></b>	<i>pojken.</i>
			SUBJ	V neg	OBJ
		SC:	[ <i>Pojken som flickan <b>inte kramade</b></i> ] <i>åt glass.</i>		
			SUBJ	neg V	
(7)	Step 2.	MC:	<i>Flickan</i>	<b><i>ville inte</i></b>	<b><i>krama</i></b> <i>pojken.</i>
			SUBJ	AUX neg	V OBJ
		SC:	[ <i>Pojken som flickan <b>inte ville krama</b></i> ] <i>åt glass.</i>		
			SUBJ	neg AUX	V

Another example, not mentioned in Pienemann (1998) or Pienemann and Håkansson (1999), is the differentiation of main clause and subordinate clause word order that occurs in the object relative clause i.e. OSV. Both the subordinate clauses in step 1 and 2 above are examples of (negated) object relative clauses. The object relative clause, which is a feature that has only quite recently begun to capture the interest of researchers (e.g. Jönsson, 2013) in regard to the Processability Theory framework, will be discussed further in section 2.4.1.2. below.

## 2.4. The grammatical structures to be analysed

In this thesis grammatical structures from stage 2 to 5 of the PT model for Swedish will be analysed in both the elicited imitation data and the free production data. Note, however, that not all the above mentioned grammatical structures of each stage will be analysed. The structures to be analysed will be

presented in more detail below, beginning with the grammatical structure of stage 2: verb morphology (present and past tense), followed by attributive agreement of stage 3, predicative agreement and inversion of stage 4 and differentiation of main clause and subordinate clause word order, and the placement of the negation of stage 5. The analysis of the grammatical structures will be presented in section 3.4.

Stage 2: In Swedish there is no subject-verb agreement on the verb, which is only marked for tense. This study is therefore concerned with present and past tense.

Stage 3: As mentioned previously, in Swedish the adjectives agree with the noun in number, gender and definiteness. This study includes only the analysis of number agreement in both attributive agreement and predicative agreement, which will be discussed in stage 4 below.

(8) Attributive agreement takes place **within** the NP

a. *en svart*∅ *hund*∅

b. *flera svart-a hund-ar*

Stage 4: predicative agreement and inversion.

(9) Predicative agreement takes place **between** phrases

a. *Lastbilen var vit*∅

b. *Lastbil-arna var vit-a.*

In order to facilitate an analysis of whether or not the L2-learner can process both attributive and predicative agreement, minimal pairs have to be available as in (8a) and (8b), and (9a) and (9b) above.

The second structure of stage 4 to be analysed is inversion, which means that when for example an adverb or an object is topicalized i.e. placed in the fundamnet slot, the verb still needs to be placed in the second slot in accordance with the V2-rule and therefore, as in the example in (10a) and (10b) below, the subject is placed after the verb. Inversion is not possible in subordinate clauses but belongs in main clauses.

(10) Inversion

a. *Idag har Kalle inte sett någon vit lastbil.* (XVS)

b. *Har de inte köpt några vita bilar idag?* (VS)

Inversion is, as can be seen in (10b) above; also present in yes/no questions which would otherwise turn into a declarative clause, as shown in examples (11) and (12) below. However, inversion in yes/no questions is not always included in studies of Processability Theory since it is argued to emerge earlier than inversion after a preposed non-subject (Eklund-Heinonen, 2005:47; 2009: 80-81). A

reason for the yes/no questions' earlier emergence is considered to be that the word order of these questions has a communicative value which is not the case regarding inversion with e.g. topicalized adverbials (Eklund-Heinonen, 2005:47). In this study they are included since in the elicited imitation test there is only one context of a yes/no question and for the participant to be regarded as being able to process the structure at least two contexts of inversion are required. Further, in the free production data all participants who can process the stage do mainly produce contexts containing inversion after a preposed non-subject.

- (11) *Har de inte köpt några vita bilar idag?*  
Have they not bought any white cars today?
- (12) *De har inte köpt några vita bilar.*  
They have not bought any white cars.

Stage 5: There are different kinds of subordinate clauses in Swedish that can be used to test stage 5. For this study the relative clause, which will be described and exemplified in section 2.4.1, is adopted.

#### **2.4.1. Subject relative clauses and object relative clauses**

When a language allows relativization it is often limited to the subject and object (direct object). Swedish is a language which, when it comes to relativization, allows for all clause elements to be relativized. This study will only include subject and object relative clauses, and the negation of both types. Of which the non-negated subject relative clauses will not be included in the analysis since there is no difference in word order from that of a main clause (SV), and hence they are not used to determine stage 5 within the PT framework. The reason for the subject relative clauses to be included in the test is solely as a contrast to the negated subject relative clause.

##### **2.4.1.1. The Subject relative clause**

In a subject relative clause (SR) the head of the NP, which is relativized, fills the argument slot as subject of the main clause.

- (13) *Mannen bor i huset. (MC)*  
The man lives in the house.
- (14) *[Mannen, som bor i huset] är polis.*  
[The man, who lives in the house], is a police officer.



In the second sentence (18) the head has been moved, leaving a gap (underlined in the example sentences) in the relative clause. The gap is the location of the missing constituent in the relative clause. All relative clauses have a missing constituent.

- (21) Bollen [som Johan kastade\_\_]  
The ball [that Johan threw\_\_].

The head of the NP is *bollen*, the relativizer *som* is referring to *bollen* and the gap occurs in the direct object position, after the finite verb *kastade*. The underlying meaning is Johan kastade [bollen]. Not all languages have a gap construction; some languages fill this slot with a resumptive pronoun. A resumptive pronoun occurs when the function of the relative pronoun is repeated by a personal pronoun. The use of a resumptive pronoun is presented below in an example from Bea, one of the participants in the present study. Her L1 is Greek, a language that make use of this grammatical feature. The example is an exact transcription of her response.

- Relative pronoun: *pojken*      Resumptive pronoun: *honom*  
(22) Bea: *Pojke som flickan inte vill hugg, hug... hug honom.*  
Boy that the girl did not want to hugg, hug ... hug him.

The grammatical structures to be analysed for stage 5 is accordingly: the placement of the negator in subordinate clauses, both subject- and object relative clauses, but also the word order of non-negated object relative clauses since they display a difference in main and subordinate clause word order.

	Difference between MC and SC and placement of negator	Word order
(23)	<i>Kvinnan [som <u>inte</u> bor i huset] är polis.</i>	SRNeg      SNegV
(24)	<i>Bollen [som Johan kastade] krossade lampan.</i>	OR            OSV
(25)	<i>Bollen [som Johan inte kastade] var liten.</i>	ORNeg      OSNeg

#### **2.4.1.3. Research on Object relative clauses**

Studies by Friedmann, Belletti and Rizzi (2009), Contemori and Belletti (2014) and Staub (2010) have shown that for children, object relative clauses are more difficult than subject relative clauses to comprehend as well as produce. Object relatives are also more inclined to result in errors (Friedmann et al, 2009: 68). Friedmann et al. (2009) studied ORs of Hebrew speaking children, Contemori and Belletti (2014) studied both Italian speaking children of varying age and adults, while Staub's study

(2010) concerns adult native speakers of English. In subject relatives, as in *Mannen [som\_\_\_bor i huset]*, the gap is found in the verb's subject position, but for object relatives, as in *Bollen [som Johan kastade\_\_\_]*, the gap is found in the verb's object position. The relativizer *som* is in psycholinguistics literature referred to as a *filler*. In the SR, there is no distance between the filler and the gap i.e. the relativizer (the filler) is followed by the gap, leaving no other elements between them. In the OR, however, there is a distance between the relativizer (the filler) i.e. both the subject and the verb of the subordinate clause comes between the filler and the gap. This matter is often regarded as to be the source behind object relatives being more difficult to comprehend, produce and/or to parse (Friedmann et al. 2009:71; Ueno and Garnsey, 2007:648).

In Jönsson (2013) the production of relative clauses was examined in L2 Swedish. For this purpose he used an elicitation test in the form of the preference test (Novogrodsky and Friedmann, 2006; Belletti and Contemori, 2012), to test the L2-learners' oral production of relative clauses and compared the results to a similar test performed on L1-learners at around the age of five. Jönsson (2013) examined both relative clauses where the subject was relativized (SRs) and where the object was relativized (ORs).

(26)           Studenten [som\_\_känner läraren]           (SR)

The student who knows the teacher

(27)           Studenten [som läraren känner\_\_\_]           (OR)

The student who the teacher knows

Jönsson (2013: 41-43) claims that ORs are more difficult to process than SRs, something he argues PT can hold a possible explanation for. Jönsson suggests that SRs and ORs are two different steps of stage 5, where the first (SRs) is processable before the second (ORs).

However, and as seen in 2.4.1.1. above, SRs does not differentiate main clause and subordinate clause word order unless they are negated, hence Jönsson's claim is only true if the SR is negated.

## 2.5. Implicit and explicit L2 knowledge

Implicit and explicit L2 knowledge is defined as follows (Ellis, 2008:6-7):

“Implicit knowledge is intuitive, procedural, systematically variable, automatic and thus available for use in fluent, in unplanned language use. It is not verbalizable. According to some theorists it is only learnable before learners reach a critical age (e.g. puberty). “ (Ellis, 2008: 6-7)

“Explicit knowledge is conscious, declarative, anomalous and inconsistent (i.e. it takes the form of ‘fuzzy’ rules inconsistently applied), and is only accessible through controlled processing in planned language use. It is verbalizable, in which case it entails semi-technical or technical metalanguage. Like any type of factual knowledge, it is potentially learnable at any age.” (Ellis, 2008: 7)

Simply put, implicit knowledge is knowledge the learner is unaware of, most likely unaware both of having learnt it and the bare existence of it, and hence cannot be explained by the learner. It is also intuitive – based on feel. Implicit knowledge is accessible to be utilized in spontaneous language production (Ellis and Barkhuizen, 2005:5). Explicit knowledge is knowledge about the language which is conscious and can be explained by the learner.

To explain the intuitive and conscious awareness of what is grammatical an ungrammatical sentence can be used (Ellis, 2009:11). A learner, who intuitively knows that something in the sentence is ungrammatical but who has no conscious awareness of why i.e. what rule is broken, can be said to have implicit knowledge of the grammatical feature but no explicit knowledge of it.

That implicit knowledge is procedural may be explained in that a learner e.g. when faced with an action which occurred in the past and is completed, automatically restore to some kind of system and adds the suffix *-ed* to the verb. The procedural rules may or may not be target language like; the learner may at times overgeneralize the use of .e.g. the suffix *-ed* for past tense verbs. As can be seen in e.g. Ellis (2008), the acquisition of implicit knowledge is often presented in developmental sequences. Explicit knowledge is declarative, that is it consists of knowledge about the L2. Explicit knowledge can be compared to encyclopaedic knowledge (Ellis and Barkhuizen, 2005: 6), and there is not really any proper difference between explicit and encyclopaedic knowledge (Ellis, 2009:11). The declarative rules are often not entirely accurate or may also be rather imprecise i.e. the learner may have some explicit knowledge of why a sentence is considered ungrammatical, but may not be very precise or accurate in explaining the reason for it (Ellis, 2009:12).

According to Ellis (2009), implicit knowledge can only be reached through automatic processing i.e. in unplanned language production the procedures containing implicit knowledge are accessed rapidly. Explicit knowledge is often only accessible through some controlled processing i.e. the

declarative information is accessible through processes which are consciously called on (Ellis, 2009:12).

Ellis and Barkhuizen (2005: 18-19) mention the element of time pressure in relation to testing language production, and suggest that timed tests are more likely to result in the learner resorting to implicit knowledge. Untimed tests are more likely to result in the learner resorting to his or her explicit knowledge. The learner's output can, when the learner is given unlimited time, be cautiously planned (Ellis and Barkhuizen, 2005:40).

## **2.6. Testing implicit knowledge using elicited imitation within the PT framework**

The extent to which experimentally elicited data, i.e. data which aims to get the participant to produce certain features that the researcher is interested in, may contribute viable measures of the learner's implicit knowledge is examined in Ellis' (2008) study. Furthermore, the study also examines if the same predicted order of developmental stages found in naturally occurring data, i.e. data of language use in real-life situations with a communicative and/or aesthetic purpose, is followed for the elicited data. Ellis (2008) also examined whether or not the elicited data collected by an instrument designed to measure explicit knowledge would follow the same predicted order of development as the instruments designed to measure implicit knowledge. In the same study, predictions from the Processability Theory (Pienemann, 1998) for four grammatical structures of English, one from each of the following processing procedures: the Category procedure, the Phrasal procedure, the S- procedure, and the Subordinate clause procedure, are tested. The study is based on a battery of tests used in a previous study which proved the Oral Imitation Test to be most accurate in measuring implicit knowledge, and the ungrammatical sentences of the Untimed Grammaticality Judgement Test best for measuring explicit knowledge (Ellis, 2008). For a detailed description of the tests see Ellis (2008: 10-11). The test of interest for this thesis is the Oral Imitation Test. The elicited oral imitation test originally consisted of 34 sentences of 17 structures i.e. two sentences of each structure: one grammatical and one ungrammatical. For Ellis' 2008 study the amount of structures were narrowed down to four structures. The grammatical structures used were: *possessive -s* which is marked diacritically on the noun, *since/for* where the choice of the preposition is dependent on the NP following it, *third person -s* which calls for inter-phrasal agreement, and *question tags* which are dependent on information incorporated in the main clause preceding it (Ellis, 2008: 14).

The participants of Ellis' (2008) study had to indicate whether or not they agreed with the expressed statement as a delay task so they would not resort to their explicit knowledge. Their response was recorded and later scored based on how they imitated correctly and corrected the ungrammatical sentences. As a criterion of acquisition the emergence criterion was used (see section 3.4.1.) and the participant were required to use the structure correctly in both items measuring it in the

imitation test in order for a structure to be regarded acquired as implicit knowledge, and for a structure to be regarded acquired as explicit knowledge when the participant used both of the ungrammatical sentences measuring it in the Untimed Grammaticality Judgement Test correctly (Ellis, 2008: 15).

The implicational pattern which was the result of the Oral Imitation Test data follows the learning order predicted by PT, and hence the experimentally elicited data was proven to be comparable to the spontaneous language data traditionally used in research within the PT-framework. The results of the Untimed Grammaticality Judgement Test did not follow the predicted implicational pattern. The structures from the higher processing procedures proved to be less difficult than those of the lower procedures (Ellis, 2008:15).

The need for an instrument which can be used to collect information about learners' implicit knowledge of specific linguistic features is considered noticeable (Ellis 2008: 17). It is suggested that an elicited imitation test may be capable of providing data containing the same essential characteristics as the naturally elicited data used in Processability research (Ellis, 2008:17). An elicited imitation test, designed to measure L2-learners' implicit knowledge of cautiously selected grammatical features, representing different processing procedures of PT (Pienemann, 1998), might be possible to create (Ellis, 2008:17). Furthermore, it is suggested that the elicited imitation test also may supply researchers with a method which could perhaps provide a more accurate description of what developmental stage the individual learner has attained than the "beginner", "intermediate", or "advanced" distinction currently in use (Ellis, 2008.17).

A different view on the matter can be found in Pienemann (2015) where the claim that data from elicited imitation and free production are not comparable since they are suggested to involve different psycholinguistic mechanisms presented. In Pienemann (2015), the study carried out by Zhang and Lantolf (2015), who use elicited imitation to collect their data, is commented on. Zhang and Lantolf (2015:162) hold the method as suitable for tapping the linguistic competence of the informants. The previously mentioned claim that elicited imitation and free production are not comparable is supported by referring to the PALU study (see Pienemann, Keßler, and Lenzing 2013), which conclude that L2-learners achieve considerably higher stages in elicited imitation than they do in free production (Pienemann, 2015: 139). The PALU study was conducted at the University of Paderborn, Germany. The informants were students of linguistics at the university who had German as their L1, varying L2s and the target language (TL) Swedish which is their L3. The hypothesis is that the students will follow the implicational sequence of grammatical development and not transfer any L1 or L2-structures before these are developmentally processable to the learner, which Sayehli (2013) also found evidence of. The structures are also assumed to appear in the order of the Processability hierarchy for Swedish. Apart from the repetition of phrases and sentences, the learners are also expected to be able to use structures as fixed formulae (Pienemann, Keßler, and Lenzing 2013:153-155). The framework for the collection of data was built up by three components: lesson in Swedish, followed by a session with four communicative tasks, and two weeks later a post-test was conducted after the lesson in Swedish.

The informants listen repeatedly to recordings of a list of words prior to the lesson. These words were related to the communicative tasks and used in the lessons along with picture cards containing illustrations of the words. This exercise was followed by a one-on-one lesson in Swedish where the informants were exposed to different structures of different PT stages. The aim was to provide contexts for repetition of utterances and thereby create an environment for the production of “formulaic speech” (Pienemann, Keßler, and Lenzing 2013:154-155). The interest in formulaic speech is due to test the hypothesis that repetition of advanced L2-structures is possible in learners of a foreign language even though they are not able to use these structures productively (Pienemann, Keßler, and Lenzing 2013:155). The communicative tasks and the post-test were created in a way as to make sure that the utterances they elicited were not the same as in the lessons. In the PALU study, the imitation of V2 was examined and the results demonstrate that the informants imitate the structure but do not use it productively as the authors expected. That the informants could repeat sentences containing V2 without any prior input in Swedish led the authors to claim that their hypothesis is confirmed i.e. learners can store and repeat sentences including structures of a more advanced character (Pienemann, Keßler, and Lenzing, 2013:156). None of the informants produced any samples of V2 structures in free production. Furthermore, it is suggested that the study display formulae as a factor which is inclined to result in misleading conclusions of the studies of which the focus is on the initial state (Pienemann, Keßler, and Lenzing, 2013:158)

It should be noted that neither Ellis (2008) nor Pienemann (2015) or Pienemann, Keßler, and Lenzing (2013) provide any examples of the sentences of the elicited imitation test which does not make it possible to compare the test constructions and state if their test function in the same way.

## **2.7. Experimentally elicited data**

There are two types of data which can be discernible in SLA research; naturally occurring data, and elicited data. Naturally occurring data is data from real-life situations where the purpose is communication of some sort, while elicited data is data gathered by applying an instrument designed for that particular task (Ellis, 2008:5). Furthermore, two types of elicited data can be discerned; clinically elicited data, which will not be regarded in this study, and experimentally elicited data, which is the type of elicited data this study is based upon. Experimentally elicited data is data where the intention is for the participants to provide data which is incorporating those particular linguistic features the researcher is interested in at that point in time (Ellis, 2008: 5). Since the researcher is attempting to obtain a particular linguistic feature he or she is very much in control of the language produced (Ellis and Barkhuizen, 2005:36).

A reason for using elicited data instead of naturally occurring data would be that naturally occurring data may not contain a sufficient amount of examples of the specific grammatical structures studied, as will be seen in the case of the free production of this study.

## **2.8. Elicited imitation – an overview**

The test used in this study is an elicited imitation test, also referred to as e.g. Elicited (Oral) Imitation Test, Oral Imitation Test, elicited imitation, verbal imitation, or sentence repetition. In this thesis it will be referred to as the elicited imitation test from hereon. An important reason as to why an elicited imitation test is a useful instrument is that it is considered to reveal the learners' grammatical knowledge (e.g. Ellis, 2008; Sayehli, 2013; Vinther, 2002), and it also is believed to yield information about grammatical structures which would be difficult to obtain sufficient proof of in spontaneous production (Ellis, 2008:5). Furthermore, learners' cannot produce utterances which they do not understand (Vinther, 2002:58), and therefore elicited imitation is said to tap on learners' implicit knowledge. Elicited imitation tests are also both quick and easily administered, can include large ranges of different types of sentences, and also be scored in different ways to fit the focus of the analysis (Marinis and Armon-Lotem, 2015:117). Elicited imitation (EI) has, for quite some time, been used as a tool for language testing within three main areas: child language research, neuropsychological research, and second language research (Erlam, 2009: 66; Vinther, 2002:54, see also Sayehli, 2013). In child language research the method was first used in the 1960's (e.g. Fraiser, Bellugi & Brown, 1963, Slobin & Welsh, 1968). Within neuropsychological research, often research regarding SLI, elicited imitation (also referred to as sentence repetition or sentence recall within the SLI literature) has been a part of the screening battery used to diagnose language impairment (Conti-Ramsden et al, 2001; Stokes, 2006; Riches et al, 2010; Chiat et al, 2013). In regard to L2-research the method was first used in Naiman (1974) to assess grammar proficiency. A few years later, a study by Hamayan et al (1977) examined grammar acquisition in child and adult L2-learners by reduplicating an earlier study carried out on L1-learners (Smith, 1970). Even though elicited imitation is a commonly used method within several research fields, it is also a method which has, at times, been widely debated and a target of criticism, see Vinther (2002:55) for a more detailed overview of studies criticising or even rejecting elicited imitation. There are, however, also many studies that report on positive evidence of the method. Gallimore and Tharp (1981) examined five studies discussing the method and found evidence for the usefulness of elicited imitation (see Gallimore and Tharp, 1981; Vinther, 2002: 55).

The method often regards oral repetition, but it has also been used for written repetition. In elicited imitation, the typically used technique is to read out an utterance to the informant, who is requested to repeat the utterance as exact as possible. In order for a participant to process/analyse sentences of an

EI test they have to be able to do so in terms of all levels i.e. phonological, morphosyntactic, and semantic levels of representation, and then extract the meaning, use their production system to recreate the meaning from working memory where the representations are activated. A high accuracy in an elicited imitation test depends on many factors related to comprehension and production, as well as the participants' ability to store and retrieve necessary linguistic data (Marinis and Armon-Lotem, 2015:98).

There are two kinds of imitation: *immediate* and *delayed* imitation. The main difference is that in the delayed imitation a distraction task is required of the informant before he or she is allowed to repeat the utterance, while in the immediate imitation the response occurs directly. This study includes the delayed imitation. As will be discussed in chapter 3 below, this is to lessen the chance of rote imitation.

As previously stated, elicited imitation is not an uncontroversial method and it is recommended to be interpreted with some caution (Vinther 2002: 55). EI also has its limitations e.g. the risk of rote repetition due to sentences being too short, or the risk of sentences being too long and therefore exceeding the informant's memory capacity (Marinis and Armon-Lotem, 2015:117). Further, there is no separating comprehension and production in EI (Marinis and Armon-Lotem, 2015:117). Some of the questions debated regarding elicited imitation are: comprehension or rote repetition, memory span, length of the cue sentence, immediate vs. delayed imitation, a test of comprehension of production skills, imitative or spontaneous capacity, structure of the cue, contextual support, and scoring (Vinther (2002: 57-68). In this study comprehension or rote repetition, immediate vs. delayed imitation, and scoring, will be addressed further since these matters are touched upon in regard to the elicited imitation carried out here.

One of the most crucial questions regarding EI is the question of comprehension vs. rote repetition i.e. is imitation due to comprehension or is it simply an acoustic image imitated as a result of rote repetition without the subject understanding the meaning? It is presumed that if a subject cannot understand an utterance he or she will not be able to imitate it correctly, unless the sentence is short enough to remain in short term memory, or if repetition does not occur directly after the stimulus has been presented (Vinther, 2002: 58). Most researchers seem to agree on imitation being a process of "decoding, interpretation and subsequent (re)production of the stimulus sentence" (Vinther, 2002: 57). Erlam (2009:66-70) emphasize the need for EI to be reconstructive in nature. Research that support the reconstructive nature of EI indicates that meaning is retained longer in memory than form (Erlam, 2009:67).

There is no agreement on whether to use immediate or delayed imitation. The opinions about the function of delayed imitation seem to diverge, some argue that the results will be better due to the subject being able to rehearse (the chance of which is intended to be reduced by the delay task of this study keeping the informant occupied), while others think the strain on short term memory may result in the cue fading before processed by the subject (Vinther, 2002:61).

When it comes to scoring, not all studies describe the way in which the scoring has been performed, or the description is not very detailed (Vinther, 2002:67). This may be seen as problematic since the scoring is an important factor in the interpretation. The common way to score elicited imitation material is to use a scale where an exact imitation is required for the highest score, (see e.g. Stokes, 2006; Marinis and Armon-Lotem, 2015:113). Jessop et al (2007) and Tomita et al (2009) present recommendations for researchers on scoring procedures and the presentation of the scoring. Elicited imitation tests can be scored in various ways depending on if they are used for research or clinical purposes, but also due to which focus the study has, or for practical reasons e.g. how much time is in the researchers' hands (Marinis and Armon-Lotem, 2015:113)

The elicited imitation test of this study will be discussed below, as will the scoring, and possible problems regarding the method in relation to the study will be addressed in the discussion of chapter 5.

### **3. Method and material**

This chapter begins with a general introduction, which is followed by a description of the participants. A detailed description of the two data sets is then followed by the analysis principles for the data. Lastly, the analysis model including a description of the emergence criteria, implicational scales, and data density, is presented.

#### **3.1. Method**

For this thesis a cross-sectional study is performed using two kinds of data: experimentally elicited data, i.e. the elicited imitation test and free production data in the form of written production i.e. student papers. The two types of data will be elicited and analysed in order to examine whether the EI test can be used as a valid instrument for measuring L2-learners' implicit knowledge, and therefore a comparison of the two kinds of data to be carried out. In order to do this, predictions of the developmental stages derived from PT (Pienemann, 1998) will be tested; more precisely stages 2 to 5 as mentioned previously (see Table 4).

A pilot study was carried out with an L1-speaker of Swedish to test the difficulty of imitating the sentences. After the first pilot, another pilot with an L2-speaker of Swedish, who had studied L2 Swedish for six years outside of Sweden and who had been living in Sweden for four years, was performed. Both pilot studies proved that it was possible to imitate the sentences – both participants excelled in the test. However, it was noted that the recordings of the sentences contained quite a few assimilations i.e. the process where speech sounds become similar or identical to the neighbouring sounds and reductions i.e. one or more segments are left out. These factors could potentially make it difficult for the participants to interpret the sentences, and to perceive e.g. different morphemes. Hence, the sentences were recorded anew with this in mind.

The data was collected by recording the participants imitating 29 sentences in total: four were created for stage 3, and five for stage 4, and fourteen for stage 5: four negated subjective relative clauses (SRNeg), five objective relative clauses (OR), and five negated objective relative clauses (ORNeg). The 29 sentences of the test include six subjective relative clauses (SR), which are not regarded as stage 5 within the PT framework, and are not included in the analysis as discussed previously, but they were rather included in the elicited imitation test as a contrast to the relative clauses belonging to stage 5. Before the actual test begun, the participants were given a practise

sentence which was not included in the test, but only functioned as to let the participants know how the test was to be performed. The recordings were carried out using a laptop and headphones with a microphone. At the time of the recording, only the participant and the researcher were present in the room. The recording took place in a room at the Centre for Language and Literature at the University of Lund. The recorded data was then transcribed manually and analysed within the PT framework. The analysis is described in further detail in section 3.3. For the elicited imitation test, it was also stated whether or not the participants managed to perform an exact imitation i.e. to the letter. The results of the analysis of the elicited imitation test and the free production were compiled separately in implicational scales since one task, the elicited material, was controlled, and the other, the free production, was not.

The free production data consists of one student paper of each participant. These papers were not written for the purpose of this thesis; they are of different length and concern different subjects. The free production data will be further discussed in section 3.2.2.

### 3.2. Participants

In total nine participants took part in the study. They were all students of L2 Swedish at Lund University, ranging from the age of 20 years to 28 years. Any of the A2 and B1-level students asked if they were interested in participating in the study were allowed to do so. Therefore their L1s, which are listed below along with biographical details about how long they have studied L2 Swedish outside Sweden, in Sweden, the total amount of time they have studied L2 Swedish, and how long they have stayed in Sweden, vary quite a lot.

Table 5. Biographical details

<b>Participant</b>	<b>L1</b>	<b>L2 setting outside Sweden</b>	<b>L2 setting in Sweden</b>	<b>Total amount of time studying L2 Swedish</b>	<b>Time spent in Sweden</b>
<b>August</b>	Italian	-	2 months	2 months	2, 5 months
<b>Albert</b>	Italian	-	2 months	2 months	2 months
<b>Allan</b>	German	-	3 months	3 months	3 months
<b>Anna</b>	Dutch	1 month	1 week	1 month + 1 week	3 months
<b>Bella</b>	Slovakian	1 year	2 months	1 year + 2 months	2 months
<b>Bahar</b>	Greek	-	3 months	3 months	2 years
<b>Birgitta</b>	Dutch/Frisian	-	2 months	2 months	2 months
<b>Bea</b>	Greek	-	5 months	5 months	2 years
<b>Britt</b>	Finnish	6 years & 4 months	2 months	6 years + 6 months	2 months

All participants had, apart from their L1(s) and L2 Swedish, studied at least two other languages and at most five languages (see Table 6 below). The proficiency in these languages is not in any way examined.

Table 6. Number of languages studied by the participants (L1(s) and L2 Swedish not included)

<b>Participant</b>	<b>Nr of languages studied (L1(s) &amp; L2 Swedish not included)</b>	<b>Participant</b>	<b>Nr of languages studied (L1(s) &amp; L2 Swedish not included)</b>
<b>August</b>	4	<b>Bella</b>	4
<b>Albert</b>	3	<b>Bahar</b>	3
<b>Allan</b>	2	<b>Birgitta</b>	5
<b>Anna</b>	4	<b>Bea</b>	4
		<b>Britt</b>	4

All of the participants studied full time at Lund University. Three of the students had studied L2 Swedish in their native country prior to their studies at the University of Lund for about one month, one year and six years respectively. The amount of time they have studied L2 Swedish in Sweden range from one week up to five months. However, none of the participants had, in total, studied L2 Swedish for less than one month and one week when the tests were performed. The participants were chosen on account of what level of L2-studies they were at. They were at level A2 (second level) and B1 (third level) of the CEFR (Common European Framework of Reference for Languages) levels given at the university. The levels were chosen so their assumed linguistic knowledge could allow them to understand the meaning of the sentences but not necessarily to process all the stages of PT fully. However, the L2-knowledge is quite diversified within the groups and the actual level is not a truly assured variable for L2-knowledge. All participants were given a code name in order to protect their identity. The participants of the A2-level were given names starting with the letter A, and the B1-level students were given names starting with B.

### **3.3. Data**

#### **3.3.1. The elicited imitation test**

The elicited imitation test used in this study was designed to supply information about the participants' knowledge of the above mentioned (see 2.4.1.) specific grammatical structures. The 29 sentences used in this test were pre-recorded by a female L1-speaker of Swedish using *Praat* (Boersma and Weenink, 2005), a computer program often used to analyse and reconstruct acoustic speech signals in Phonetics. Four sentences of stage 3, five of stage 4, and fourteen of stage 5: four containing negated subject relative clauses, five containing object relative clauses, and five containing negated object relative clauses. There are seven contexts containing attributive agreement, four containing predicative

agreement, and six containing inversion. This is as a consequence of sentences, created for other stages, containing examples of attributive, predicative agreement, and/or inversion which have then been analysed for these structures as well. As mentioned above, six sentences contained subject relative clauses and due to this may not be regarded as stage 5 within the PT framework. The reason why there are six subject relative clauses and four negated subject relative clauses is due to a not earlier discovered typo, which appeared somewhere in the recording phase, leaving out the negator in one of the negated subject relative clauses. Since the sentences were randomised in order for the participants to receive a variation of the grammatical structures during the elicited imitation test, the typo was not discovered until after all recordings were completed. The effects of this error are thought to be minor. However, it could pose a problem in case a mastery criterion was to be used instead of the acquisition criteria i.e. the emergence criteria, used in this thesis and explained in more detail in section 3.4.1.

The elicited imitation test was performed as follows: the participants listen to a pre-recorded sentence and were then given a distractor task i.e. they were to count backwards in Swedish from ten to one before imitating the sentence. This was done in order to distract the participants so they would not repeat the sentence from their short term memory (Vinther, 2002: 58), and to prevent them from resorting to their explicit knowledge. The participants were allowed to listen to the sentence once in real time, but they could produce their response somewhat in their own time. However, the test administrator regulated the presentation of the sentences, and can hence be seen as in control of the response time. The participants were instructed to respond after the distractor task was performed, and most participants responded almost directly after the distraction task.

There are many different length of sentences used in studies of elicited imitation. The length used in this study is in accordance with the length used by Erlam (2006: 477; 2009: 78) who employed a range between eight and eighteen syllables, with a mean length of 13.53 syllables. However, the discussion of the impact of sentence length will not be pursued within this thesis. The sentences were constructed with the intention to be possible to imitate if the participants could process the sought-after grammatical structures, see Appendix for the sentences of the elicited imitation test.

At first the study was not intended to include any analysis of the sentences of the elicited imitation test belonging to stages 3 and 4, but they were rather included to verify the participants' ability to process these stages since the main objective of the initial study was the relative clause structures of stage 5. However, as the study progressed and in order to test the Processability Theory properly, it proved necessary to include stages 2-4 in the analysis. This decision was taken after the recordings were completed. The wider scope did create some problems in regard to the amount of contrasting pairs within the sentences containing attributive and predicative agreement. A larger amount of sentences containing minimal pairs in regards of both the attributive and the predicative agreement would be to prefer, as would a more equal amount of sentences per structure of the included PT stages

be. The tense marking of verbs of stage 2 and the inversion of stage 4 were not affected by this since there were sufficient amount of contexts for these structures.

### 3.3.2. Free production

The free production used for the analysis was not produced specifically for this study, but rather for the participants' classes of L2 Swedish i.e. for different levels: the A2 and B1-levels. The papers vary quite a lot in length and contents. The amount of word per text is presented in Table 7 below.

Table 7. Amount of words of the participant's L2 texts

<b>Participant</b>	<b>Words</b>	<b>Participant</b>	<b>Words</b>	<b>Participant</b>	<b>Words</b>
Anna	136	Britt	200	Bella	316
Allan	144	August	220	Birgitta	340
Bea	191	Albert	284	Bahar	393

The free production data is the result of free language production (naturally occurring data) in contrast to the controlled elicitation, and hence it is possible that not all grammatical structures to be analysed in this study are present in the data. With this in mind, the analysis of the elicited and the free production data had to be carried out in a somewhat different manner (see sections 3.4.2. and 3.4.3.). The fact that the free production data does not include as many contexts for some structures as would be desirable poses some difficulty when analysing this material. If there are no contexts of a certain structure this does not mean that the learner is not able to process that stage, but simply that there is not enough data, see discussion of data density below.

The student papers were not produced for the purpose of this study, i.e. they were not controlled in any way. It could be assumed that written material allows the participants to resort to their explicit knowledge since they do not have the same time-limitation as the EI test does. However, in their study Håkansson and Norrby (2007: 91) found, that the informants did not perform at higher PT stages in the written data than in the oral. The results of Håkansson and Norrby's (2007: 81) study suggest that more time for planning as may be the case when writing does not affect the grammatical processability. Håkansson (2013:116) states that the planning time does not change the prerequisite for the analysed structures to be processable in the order of the Processability hierarchy. Furthermore, it is not possible for the learners to "stretch" their interlanguage as to contain higher levels in written than in spoken data. The planning time may, however, have an effect on other aspects, which are not explained within the PT framework (Håkansson, 2013:116).

### **3.4. Analysis**

The analyses utilize two principles, i.e. an exact imitation for the elicited imitation data, and the developmental stages of the PT framework for both the elicited and the free production data. These principles will be discussed in the subsequent sections. However, this means that apart from the exact imitation analysis the EI data is also analysed in regard to whether the target structure of the sentences is correct i.e. the PT-stage is obtained. Hence, it should be noted that the elicited imitation data is analysed as if it was spontaneous data and can be measured by PT. The acquisition criteria used in the analyses is the emergence criteria i.e. the first systematic use of a structure implies that the structure is processable to the learner (see section 3.5.1.).

#### **3.4.1. Exact imitation**

To begin with, the elicited material was analysed for whether the participant managed to produce exact imitations of the sentences. There are several ways to score elicited imitation, and the one adopted here is a scoring method commonly used to measure oral production in research (Marinis and Armon-Lotem, 2015:113). This scoring is based on the Test of Language Development-Primary (TOLD-P-4) (Newcomer and Hammill, 2008). The scoring procedure is performed in the same manner as in Håkansson and Hansson (2000:321-322). If a response is an exact imitation, the response is labelled *correct*. A response that deviate the slightest from the original sentence is analysed as *incorrect*. Sentences which were corrected by the participant were considered to be incorrect even if the final outcome was an exact imitation since a correction may suggest that the participant had resorted to their explicit knowledge (Eklund-Heinonen, 2009:81). For this reason, it is the first evidence produced by the participant that will be analysed, and not the correction. If the participant failed to give any response at all, a null response, or if he or she gave a response which did not consist of at least the subject and the verb of the model sentence, the response is considered to be *incomplete*.

#### **3.4.2. Principles for analysis - elicited imitation data**

In this section the analysis process for the elicited imitation data in regard to the PT stages will be presented in more detail. This means that the demand is not for an exact imitation but for the target structure of the model sentence to be correct. If it is correct the PT stage is regarded as obtained. The recorded material was transcribed and analysed for the following, previously mentioned, grammatical structures: tense marking on verbs (stage 2), the attributive agreement (stage 3), the predicative agreement (stage 4), inversion (stage 4) and differentiating of word order in main clause and subordinate clause, in this study the relative clause, and placement of the negation (stage 5). Stage 1 is

not analysed since all informants are considered to master invariant forms of words and single constituents, and thus stage 1 is not regarded fruitful in the analysis.

For stage 2, the participants were regarded as able to process this stage if they produced markings for present and past tense. Invariant forms such as infinite forms were not approved. Compound verb forms, which belong to stage 3, were not included in the analysis of stage 2 since the participant then needs to be able to process tense morphology over a larger unit. The elicited imitation data contains 39 verbs with tense marking, after excluding the compound verb phrases belonging to stage 3 (7 contexts) and one context of the copula verb *heter* (is called), which was excluded due to concern that it might be part of a memorised chunk and not useful in analysing whether or not the participants are able to inflict the verb for tense. All proof of the participant being able to process the stage was counted and compiled as fractional numbers: 38/39. There are seven contexts containing attributive agreement in the elicited imitation test, these are:

<i>en svart</i> ∅ <i>hund</i> ∅	<i>flera svarta hund-ar</i>
<i>en vit</i> ∅ <i>lastbil</i> ∅ (x 2)	<i>några vita bil-ar</i>
<i>någon vit</i> ∅ <i>lastbil</i> ∅	<i>några vita hund-ar</i>

In order for the participants to be approved for stage 3, they had to produce at least one minimal pair i.e. a contrasting pair, such as *en svart*∅ *hund*∅ – *flera svart-a hund-ar* for the emergence criterion to apply. As discussed in regard to the emergence criterion, this is due to the risk of the sample being an item in the learner's lexicon (Pienemann, 1998: 133). Since there are not many possible contexts the participants were approved if they managed one minimal pair.

The morphological structure of stage 4 to be analysed, the predicative agreement, also required the occurrence of at least one minimal pair. The elicited imitation test contains four contexts which were analysed for this stage:

- (28) *Hundarna är inte svarta och vita.*  
The dogs are not black and white.
- (29) *Många lastbilar är stora och svarta.*  
Many lorries are big and black.
- (30) *Lastbilarna som mannen köpte var vita.*  
The lorries that the man bought were white.
- (31) *Lastbilen som Kalle inte köpte var vit*∅.  
The lorry that Kalle not bought was white.  
The lorry that Kalle did not buy was white.

As can be seen in the sentences above, they only contain one minimal pair (30) and (31).

The second structure of stage 4 to be analysed: inversion, regards the syntactic development. The analysis includes both contexts containing inversion in declarative clauses as well as in yes/no-questions. In total there are six contexts containing inversion, five declaratives and one yes/no-question.

As will be discussed further in section 3.5.1 below, the criterion used to establish the processing of acquisition, the emergence criterion, requires different approaches regarding morphology and syntax, and hence contrasting pairs are required for the morphological structures, while one occurrence of a sample may be considered as sufficient proof for the syntactic structures (Pienemann, 1998: 133). However, for the analysis of the elicited imitation material, proof of at least two approved contexts of the syntactic stages (inversion of stage 4, and the different relative clauses of stage 5) respectively, were required in order for the participants to be approved for these stages. The reason for this is to exclude the risk of the proof to be a case of chance.

Stage 5 includes three different relative clause structures which can be analysed within the PT framework. The RCs are: the negated subject relative clause (SRNeg) where the negator is placed before the finite verb (SNegV), the negated object relative clause (ORNeg) in which the negator is placed before the finite verb and the object is, as mentioned previously, relativised (OSNegV), and the object relative clause (OR) i.e. OSV. The elicited imitation test contains four SRNeg clauses, five ORNeg clauses and five OR clauses. An example of each is presented below:

- (32)           a. *Kvinnan som inte bor i huset är polis.* (SRNeg)  
                  b. *Pojken som flickan inte ville krama log.* (ORNeg)  
                  c. *Pojken som flickan ville krama åt glass.* (OR)

The use of OSV within the PT framework has, as discussed previously, just recently taken off (e.g. Jönsson, 2013).

### **3.4.3. Principles for analysis –free production data**

Since the free production data is not controlled in the same manner as the elicited imitation test is, the occurrence and frequency of the grammatical structures to be analysed varies from text to text. This results in that the free production data may not contain all the sought-after structures, or may not contain sufficient amounts of obligatory contexts. Due to this fact the analysis of the free production data differs somewhat from that of the elicited imitation data.

The participants are approved for stage 2 if they present tense marking (present and past) on the verb. All texts are long enough to contain several sentences and hence there is a sufficient amount of tensed verbs.

The student papers, which were not written for this study, are the result of free production, and may not contain many, if any, occurrences of all the structures to be analysed. Thus it may be difficult to establish any contrasting pairs for e.g. the attributive and predicative agreement. Therefore the analysis of the attributive and predicative agreement for the free production will be executed in a slightly different manner. If no minimal pair is found, but a systematic application of attributive agreement can be distinguished the participant will be approved for stage 3. However, in accordance with Eklund-Heinonen (2009: 77), who examined spontaneously produced (oral) data; this will only be applicable if the text contains a minimum of three productive contexts where the participant uses agreement on the adjective both for singular and plural nouns.

The same procedure is utilized for the predicative agreement (stage 4) i.e. either a minimal pair or a systematic application of predicative agreement with at least three approved contexts containing agreement on the adjective for both singular and plural nouns.

As for stage 4 (inversion) and stage 5, the analysis is carried out in the same fashion as for the elicited imitation data, with the variation that one occurrence of a productive proof is sufficient enough for the participant to be regarded as being able to process the stage. This is due to the student papers not being very long and therefore might not contain sufficient amounts of data regarding the structures. One important circumstance should however be mentioned in regard to the analysis of stage 5, since all kinds of subordinate clauses could be present in the free production data. It is only the relative clause structures of stage 5 that are included in the analysis of this study. There are two reasons for this: first, the exclusion of *att-satser* i.e. subordinate clauses introduced by the subordinator *att* (*that*) since L1-speakers are not consistent in the usage of this type of subordinate clause and hence it cannot be required of L2-learners (Eklund-Heinonen, 2009:86), second, the data only contain *att*- clauses and relative clauses.

### **3.5. Analysis model**

#### **3.5.1. Emergence criterion**

The PT stages of the participants, in both the elicited imitation data and the free production data, are in accordance with PT (Pienemann, 1998) determined by the emergence criterion. The emergence criterion is the acquisition criteria used by PT to establish the beginning of an acquisition process (Pienemann, 1998: 153). The emergence criterion refers to the first systematic application of the structure as proof of the participant being able to process the structure. In order for this to be true, the proof has to be productive in diversified contexts otherwise it may be a by the participant memorised chunk. This may, according to Pienemann (1998:133), be rather different in interlanguage syntax and interlanguage morphology, and hence Pienemann suggest two approaches to applying the emergence criterion: one for the syntactic development and one for the morphological development. For the

former, the emergence criterion is applicable based on at least one occurrence of a sample, but for the latter this may result in a misleading analysis. Therefore, a systematic use of the interlanguage morphology requires contrasting proof, or more sufficient proof than a minimum of one occurrence. This also underlies that in this study the elicited imitation test responses are analysed somewhat differently from the free production data regarding the attributive and predicative agreement.

Within the PT framework, overgeneralized forms of the tensed verbs are a sign of the learner's ability to process stage 2, and are therefore seen as proof of the emergence of the structure. Overgeneralizations are to be expected in the learner's interlanguage (IL) until the structure of the target language (TL) is acquired (Håkansson, 2013: 115). In the following examples two verbs are inflected for present and past tense. Some examples of IL verb morphology of each verb, marked in bold, are also presented below along with some examples of IL noun morphology as well.

- (33) Verb morphology (present and past tense of the verbs *play* and *go*)  
 a. *lek-er* (present) – *lek-te* (past) – ***lek-ar*** (present) – ***lek-ade*** (past) – ***lek-t*** (past)  
 b. *går* (present) – *gick* (past) – ***gå-ar*** (present) – ***gå-dde/gå-ade*** (past) – ***gå-tt*** (past)
- (34) Noun morphology (singular, plural, plural + definiteness)  
*ett hus*Ø – *många hus*Ø – *hus-en* – *många hus-ar* – ***hus-ar-na***  
 a house – many houses – the houses

In other words, suffixes of both verbs and nouns may undergo overgeneralizations within the learner's IL. These kinds of overgeneralisations may be quite frequent in the IL of L2-learners of Swedish. *Lekt* and *gått* are supine forms of the verbs, but when the production of L2-learners is analysed within the PT framework these forms, if used to refer to past time and contrasted with the verb in present tense, may be analysed as proof of the learner's ability to process the verb morphology even though this use of the forms is not TL like (Håkansson, 2001: 91).

### 3.5.2. Implicational scales

The results of the analysis will be presented in implicational scales such as can be seen in Table 9 and Table 10. Implicational scales have been commonly used within SLA research to study the distribution of linguistic features. The method is not restricted to SLA research, but is used for studying linguistic variation in general, and was first presented as a method to measure social attitudes (Håkansson, 2013c). The use of a certain structure implies that a structure from a previous stage is processable i.e. the previous stage is a pre-requisite for the following but not the reverse. The method is of great

importance in demonstrating the developmental stages of PT (Pienemann, 1998) in second language acquisition (Håkansson, 2013c).

In this study an obtained stage is stated by a plus sign +, a non- obtained stage is stated by a minus sign -, and if the context is missing this is stated by /. A missing context is considered as – i.e. not obtained in the implicational scales of the emergence criteria for the elicited imitation data, but not in the free production data since the participants were not given any specific structures as within the elicited imitation test. If the free production data contain too few or too insecure proof of whether a stage is obtained or not, these are marked (+) or (-) depending on whether the participant, given that the proof would have been considered sufficient, would have obtained or would not have obtained the structure.

### 3.5.3. Data density

Data density explained by PT:

“Data density refers to the number of times the context for a grammatical rule is produced in relation to a fixed length of text”. (Pienemann, 1998:298)

Different tasks may produce different linguistic structures and/or different amounts of applicable data, as previously discussed, in regards to the different analysis of the elicited and the free production data. If obligatory contexts for a certain structure are absent this does not mean the same as the learner not using the structure in obligatory contexts. The lack of proof is not to be considered as evidence for non-usage of the structure. When there is a fair amount of obligatory contexts but the structure does not occur then it is most likely that the learner cannot process it (Pienemann & Keßler, 2011:94-95).

The matter of input frequencies of L2-structures should also be taken into consideration (Rahkonen and Håkansson, 2008). Structures with higher context frequency are inclined to emerge earlier, and to be learnt easier, than structures with a lower context frequency (Rahkonen and Håkansson, 2008:154). Furthermore, it is suggested that some structures are more frequent in the learner’s input than others e.g. tense and the attributive and the predicative agreement can occur in main clauses as well as in subordinate clauses, while the relative clauses, and the preverbal placement of the negation is confined to subordinate clauses (Rahkonen and Håkansson, 2008: 154). Therefore, it is likely that the relative clauses and the preverbal placement of the negation are prone to receive less teaching than those structures with higher input frequencies.

## 4. Results

This chapter begins with the results of the exact imitation analysis principle of the EI data, which is followed by the results of the elicited imitation and free production data of the PT analysis, and finally the results of the comparison of the two data sets is presented.

### 4.1. Exact imitation

As can be seen in Table 8 below, three of the participants do not produce any exact imitations, two participants only produce one exact imitation, three of them produce a couple of exact imitations, and Britt manages quite a few more than her fellow participants. Furthermore, the result of the analysis show that most participants are able to produce a response which can be regarded as an incorrect imitation, i.e. the response contains at least the subject and the verb of the model sentence. Albert and Anna are fairly high in incomplete imitations, meaning they produce quite a lot of responses which contain less than the subject and the verb, or are complete null responses. Anna has, however, more correct imitations than all participants except for Britt and Birgitta. Most instances of incomplete imitation are due to responses containing simply one word e.g. *lastbil* (lorry), or a null response. As mentioned above, it should be noted that in order for the imitation to be regarded as exact it has to be the exact model sentence played back to the participants. Most participants have more incorrect imitations than incomplete imitations, with the exception of Albert who has almost twice as many incomplete imitations as incorrect ones.

Table 8. Exact imitation – elicited imitation test

<b>Participant</b>	<b>Correct imitation</b>	<b>Incorrect imitation</b>	<b>Incomplete imitation</b>
<b>August</b>	0	20	9
<b>Albert</b>	0	10	19
<b>Allan</b>	0	25	4
<b>Bella</b>	1	24	4
<b>Bahar</b>	1	25	3
<b>Bea</b>	2	27	0
<b>Anna</b>	3	14	12
<b>Birgitta</b>	4	24	1
<b>Britt</b>	12	17	0

#### **4.2. Implicational scale – elicited imitation data**

Table 9 demonstrates the result of the data analysis for the emergence criterion i.e. the first systematic use of a structure. In the implicational scales of the analysis of the elicited imitation data a plus sign + indicates that the participant has produced a sufficient amount of tense marked verbs for stage 2, at least one minimal pair for stage 3 and 4 (Attr and Pred), at least two proof of each structure of stage 4 (Inv) and stage 5 (negation and word order). A minus sign - indicates that the participant has not obtained the structure. No ‘missing’ contexts can be found in the implicational scales of the elicited data since the participants were given obligatory contexts and therefore a context cannot be analysed as missing.

Table 9. Implicational scale for the elicited imitation data – emergence criterion

PT stage 2 (tense), 3 (Attr), 4 (Pred & Inv) and 5 (OR/SRNeg/ORNeg)

<b>PT Stage</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Participant</b>	<b>Tense</b>	<b>Attr</b>	<b>Pred/ Inv</b>	<b>OR/SRNeg/ORNeg</b>
<b>August</b>	+	-	-, -	-, -, -
<b>Albert</b>	+	-	-, -	-, -, -
<b>Allan</b>	+	-	-, -	-, -, -
<b>Anna</b>	+	-	-, -	-, -, +
<b>Bella</b>	+	-	+, +	+, -, -
<b>Bahar</b>	+	-	+, +	+, +, -
<b>Birgitta</b>	+	+	+, +	+, -, -
<b>Bea</b>	+	+	+, +	+, +, +
<b>Britt</b>	+	+	+, +	+, +, +

Elicited imitation

The results of the emergence criterion of the elicited data are presented in the implicational scale in Table 9 above. It should be noted that the implicational scale is not a perfect implicational scale and it is likely that if one were to calculate the scalability it would be quite low. All participants can process stage 2, but only three are able to process stage 3. However, five participants are able to process both the predicative agreement and inversion of stage 4, and hence two of the participants, Bella and Bahar, do not follow the implicational pattern. Both Bella and Bahar have also produced a sufficient amount of proof for different structures of stage 5. Two participants, Bea and Britt obtained all stages and all the structures of stage 5. Birgitta also managed all stages, but not all the structures of stage 5. Birgitta, Bea and Britt follow the predicted implicational pattern. August, Albert and Allan also follow the implicational pattern, even though they do not produce proof of more than stage 2 (and stage 1). Of the A2-level students only Anna produces sufficient proof of a structure other than tense marking on the verb (stage 2); she imitates two out of five contexts of the ORNeg structure. Anna does not follow the predicted implicational pattern since she does not provide any proof of stage 3 and 4. Of the different relative clause structures, the object relative clause is the one most participants are able to imitate. However, it is, as mentioned above, only Anna of the A2-level students who is able to process any of the relative clause structures of stage 5.

#### 4.3. Implicational scale – free production data

Table 10 demonstrates the result of the free production data analysis for the emergence criterion i.e. first systematic use of a structure. As mentioned previously, the analysis of the free production data is

conducted in a somewhat different manner for the attributive and predicative agreement. One minimal pair or at least three contexts containing proof of a systematic use of the concerned structure are needed for the structure to be considered processable to the participant. For stage 4 (Inv) and the structures of stage 5, the analysis is carried out in the same fashion as for the elicited imitation data, with the variation that one occurrence of a productive proof is sufficient for the participant to be regarded as being able to process the stage. The reason for this is that the free production data is not controlled and therefore one occurrence of a syntactic structure may be considered to have emerged in the participant's interlanguage. As for the implicational scales of the elicited material, an obtained structure is indicated by a plus sign +, and a non-obtained structure is indicated by a minus sign -. The implicational scales of the free production data also include (+) and (-) when there are too few or too insecure proof of the structure. (+) is used when the structure would have been considered as obtained if the proof had been considered more reliable, and (-) is used when the structure would not have been considered as obtained. If there are no obligatory contexts, this is indicated by a slash /. Since the structure is not present it cannot be concluded whether the participant is, or is not, able to process the intended structure. It should be noted that the implicational scale in Table 10, like the one in Table 9, is not a perfect implicational scale and would likely result in a fairly low scalability.

Table 10. Implicational scale for the free production data – emergence criterion

PT stage 2 (tense), 3 (Attr), 4 (Pred & Inv) and 5 (OR/SRNeg/ORNeg)

<b>PT Stage</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Participant</b>	<b>Tense</b>	<b>Attr</b>	<b>Pred/ Inv</b>	<b>OR/SRNeg/ORNeg</b>
<b>Anna</b>	+	(-)	/, (-)	/, /, /
<b>August</b>	+	-	(-), +	/, -, /
<b>Albert</b>	+	(-)	-, +	/, /, /
<b>Allan</b>	+	(-)	/, +	/, /, /
<b>Britt</b>	+	/	+, +	/, /, /
<b>Birgitta</b>	+	+	(+), +	/, /, /
<b>Bea</b>	+	(+)	+, +	/, +, /
<b>Bahar</b>	+	+	+, +	/, +, /
<b>Bella</b>	+	+	+, +	/, +, /

Free production

For the emergence criteria of the free production data all participants can process stage 2, and all but one (Anna) can process inversion of stage 4. Anna's text contains three contexts of inversion of which two are not considered as valid proof of the structure being processable to her. An example of one of her non-valid proof is:

- (35) \***Därför jag vil** inte gå till tennisfinalen i Wimbledon. (XSV)  
That is the reason I want not go to the tennis final at Wimbledon  
(That is the reason I do not want to go to the tennis final at Wimbledon)

The fact that she produces more non-valid proof than valid proof results in (-) since the proof then cannot be considered strong enough. Although almost all of the participants can process stage 4, only three obtain stage 3 i.e. Bahar, Bella and Birgitta, and hence follow the predicted implicational pattern. Bea has too few contexts to conclude if she can indeed process stage 3, and she received a (+) for stage 3, but she has produced sufficient proof of both stage 4 and 5, which is also the reason why she is placed after Birgitta in the implicational scale. Britt has no contexts for stage 3 in her free production, which does not mean that she cannot process the structure, only that there is no obligatory context for it. Furthermore, in regards to stage 5, there are three participants who obtain this stage, and when they do so they only use the negated subject relative clause (SRNeg). There are no contexts of either the object relative clause or negated object relative clause in the free production data.

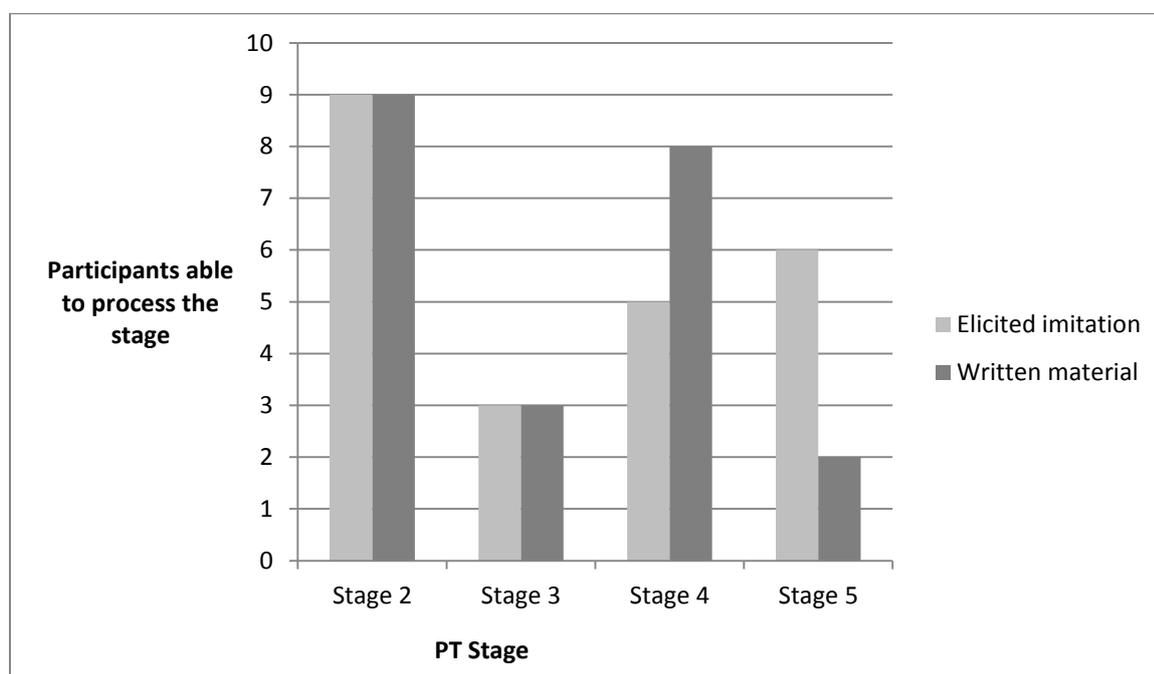
#### **4.4. Comparison elicited imitation – free production**

Table 9 above display how Britt and Bea excel in the elicited imitation test, and how Birgitta is also able to produce all stages. But when examining Table 10 for the free production, it is noted that it is Bella and Bahar who are able to produce all stages, while Britt only has enough proof of stage 2 and 4, Bea does not have secure enough proof of stage 3, and Birgitta has no contexts containing stage 5. Three of the A2-level students; August, Albert and Allan, who did not manage to produce inversion in the elicited data, have produced a sufficient amount of proof for the structure in the free production data. Their texts contain at least three proof of the structure. Since August, Albert and Allan produce sufficient proof of inversion but not for stage 3, they do not follow the implicational pattern in their free production data. Furthermore, more than half of the participants (six of them) managed to produce stage 5 in the elicited data, but only three have any contexts containing a structure of stage 5 which they have obtained enough proof of. It should also be noted that there are no contexts for OR or ORNeg structures present in the results of the free production data, while the OR was the most frequent structure of stage 5 in the elicited data.

Table 11. Overview of obtained structures in the two sets of data

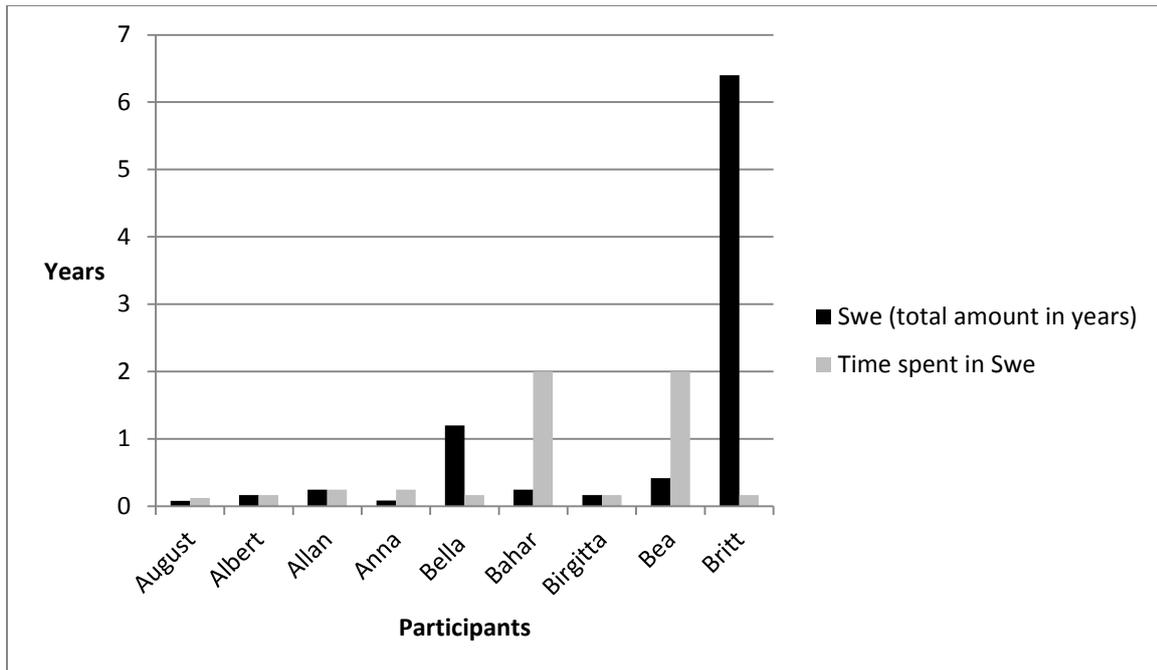
Participants	EI PT-stages	Free production PT-stages
Anna	2 5	2
August	2	2 4
Albert	2	2 4
Allan	2	2 4
Britt	2 3 4 5	2 4
Birgitta	2 3 4 5	2 3 4
Bea	<b>2 3 4 5</b>	<b>2 3 4 5</b>
Bahar	2 4 5	2 3 4 5
Bella	2 4 5	2 3 4 5

Table 12. Bar chart comparison elicited imitation and free production data.



Emergence criterion

Tabel 13. Total amount of time spent on L2 Swedish and time spent in Sweden.



Biographical details of the participants

## 5. Discussion

In this chapter the results of the elicited data and the free production data presented in chapter 4 will be discussed in terms of the research questions stated in the introductory chapter, and the background information of chapter 2. In connection to the discussion of the results, possible problems regarding the method will also be lifted. First a brief discussion on the results regarding exact imitation followed by the discussion and comparison of the results of the elicited and the free production data.

### 5.1. Exact imitation

Exact imitation proves to be somewhat difficult for all the participants. Three participants do not produce any exact imitations, and with the exception of Britt, the rest produce between one to four exact imitations. A possible reason for the higher production of exact imitations (three times as many as the other participants) in Britt's result from the elicited imitation test could be related to the length of time she has studied L2 Swedish (6 years and 4 months). Her comprehension of the meaning of the sentences of the elicited imitation test could be considered to be greater than the other participants' comprehension. As noted in Vinther (2002: 58) a learner cannot correctly imitate sentences which he or she has not understood, unless the sentences are short and repetition occurs immediately.

The second highest amount of exact imitations is found in Birgitta's elicited imitation test i.e. four exact imitations, and following Birgitta is Anna with three exact imitations. None of them have studied L2 Swedish for more than two months, but they have the same L1 – Dutch. It could be speculated that the L1 may play a role in them imitating marginally better than the rest of the participants, if such a correlation exists, but since none of them have a considerable amount of exact imitations it is not possible to draw any conclusions of the role of the L1 in the imitation procedure. A much larger number of participants with Dutch as their L1 would also be required in order to conclude any possible role of the L1 in the results of the imitation. Furthermore, it would be difficult to measure since many other factors could be part of the reason why a person performs higher on an imitation task. Another aspect which could be speculated to influence the results of the imitation along with the L1 is the amount of languages studied prior to the acquisition of L2 Swedish (see Table 6). Birgitta and Anna had studied five and four languages respectively (their L1(s) and L2 Swedish not included). In regard to a possible influence of the L1 and number of languages studied prior to the acquisition of L2 Swedish, it is interesting to see that Allan, who has German, which shares some grammatical

features with Swedish, as his L1, does not produce any exact imitations at all. If there was to be a correlation between the L1 and the number of languages studied, and the outcome of exact imitations, Allan's low score in regard to the exact imitation demand could possibly be explained by that he has not studied as many languages as Birgitta and Anna. However, in order to draw any conclusions of the influence of L1 and amount of languages previously studied would require a much larger set of data. Again, this would be difficult to measure due to many other factors, e.g. a participant's imitation results may of course be influenced by individual factors, such as hearing and perceiving the sentence played back to them.

Albert has close to twice as many incomplete imitations as his fellow participants. If the reason for this is due to length of time spent in Sweden, amount of time he has studied L2 Swedish, individual factors, if he had more difficulty in perceiving the sentences and so forth, can only be speculated. It seems likely to assume that he has difficulties in comprehending the model sentences and therefore cannot imitate them exactly (e.g. Vinther, 2002:58).

The requirement of an exact imitation of the sentences of the elicited imitation test appears, as discussed above, to be quite difficult. However, why it turned out to be this difficult is not possible to conclude. It could perhaps be related to factors such as the recording of the sentences or the perception of e.g. morphemes on the participants' behalf, or it could be related to their comprehension of the meaning of the sentence.

In the following section (5.2.) the EI data analysed in terms of PT stages, i.e. if the target structure was correct the PT stage was considered to be obtained, will be discussed.

## **5.2. Elicited imitation data**

In the introductory chapter of this thesis, the research question of whether the participants would follow the implicational pattern predicted by PT in the elicited and the free production data was stated. The results presented in chapter 4, demonstrate that, in regard to the elicited data, the majority does follow the predicted implicational pattern, but three participants do not follow the predicted implicational pattern, as will be addressed in the subsequent discussion.

In the previous chapter, the results show that only three participants were able to produce the attributive agreement of stage 3 in the elicited data, leaving three of the participants not following the predicted implicational pattern (Anna, Bella, and Bahar). First, Anna's results will be discussed since she stands out from the other two in that she does not obtain, nor produce any data, of any stage apart from stage 2 in the free production data. Anna had, at the time of the recording, studied L2 Swedish for slightly more than a month and does not produce any structures of stage 5 in the free production data. Nevertheless, the lack of relative clauses in the free production data does not say anything about her being able to process the stage or not. However, it could be assumed, since she does not produce

any structures of stage 3 and 4 in the elicited data, nor does she supply any sufficient proof of these stages, or of stage 5 in the free production data, that she may in fact not be able to process stage 5 in the elicited data either. That is, there is the possibility that she imitates the sentences by rote, however, this is difficult to prove. The structure Anna manages to produce proof of in the elicited imitation data is the negated object relative clause.

- (36)           Bilen [som flickan **inte ville** ha] är röd.  
                  The car that the girl not want have is red.  
                  (The car that the girl does not want is red.)

Anna's proof of stage 5 in the elicited imitation data could perhaps be interpreted as evidence supporting the claim that L2-learners achieve higher levels in elicited imitation than in free production data (Pienemann, 2015:139; Pienemann, Keßler and Lenzing, 2013:155).

The other two participants (Bella and Bahar), who do not produce any proof of the attributive agreement in the elicited imitation data, do, however, turn out to be the strongest in the free production data for all the analysed structures. Bella has eight contexts containing attributive agreement, of which seven provide sufficient proof of a systematic use of the structure. Bahar obtains all six of her obligatory contexts, and even has one minimal pair among the contexts containing attributive agreement. It can be considered possible, in regard to Bella and Bahar's results of stage 3, that there may be some problem concerning the construction of this structure in the elicited imitation test. It can perhaps be related to the low amount of minimal pairs in the elicited imitation test or the construction of the sentences containing the structure e.g. the choice of words. Another possible reason can be that the participants might have trouble hearing the morphemes in the recordings, as discussed in regard to exact imitation above. If the test was to be reduplicated, this structure should be given careful consideration in the construction of the test sentences for L2-learners of L2 Swedish, and the recordings should be checked for reductions and assimilations.

The larger number of participants who can process stage 5, and the larger variety of structures of stage 5 in the elicited data can be interpreted as evidence of the suggestion that an elicited imitation test can provide a comparable amount of data as well as information about structures which may be avoided in free production data (Ellis, 2008), or structures which have not yet surfaced in the spontaneous production, but may be on the verge of doing so (Sayehli, 2013:156). However, this is in contrast to the point of view presented in Pienemann (2015), and the results may also be interpreted as evidence for Pienemann's suggestion that informants produce higher levels in EI than in spontaneous data.

In the introductory chapter, it was also stated that the thesis aims to investigate whether there are any participants who can process a later stage without the prerequisite stage in the elicited imitation data, i.e. stage 5 before stage 4, and so forth. The answer to the research questions regarding this

matter is that three of the participants do produce proof of a later stage without prerequisite stage/stages. Anna provides proof of stage 5 without both stage 3 and 4. Bella and Bahar can process both stage 4 and 5 without stage 3. As discussed above, there might be a possibility that Anna's results of stage 5 in the elicited imitation test may be the result of rote imitation. Anna's L1 is Dutch, where the OSV structure is possible in subordinate clauses. It could be assumed that the word order similarities between her L1 and the TL could make her acquisition faster. However, as e.g. Sayehli (2013) demonstrates, transfer from L1 is not possible before the structure is processable to the learner. The learner has to go through all the stages in the predicted order of PT irrespective of the L1. Since Anna does not provide proof of any of the structures of two of the prerequisite stages i.e. stage 3 and 4, she should not be able to process stage 5 even if her L1 share similarities with the TL. It could then be assumed that her responses of stage 5 in the elicited data are due to rote imitation.

### **5.3. Free production data**

In the introductory chapter, the same research question as for the elicited data was stated for the free production data, i.e. if the participants follow the implicational pattern predicted by PT. The answer is that, as for the elicited data, they do not all follow the implicational pattern. August, Albert and Allan do not produce any proof of them being able to process stage 3, and Britt does not have any obligatory contexts containing attributive agreement. Since Britt does not provide any contexts containing the structure it cannot be concluded whether this stage is processable to her, and whether she would follow the predicted implicational pattern. The lack of proof of stage 3 in Britt's free production data could be due to matters such as the objective of her text, which may not need any contexts containing attributive agreement.

August, Albert and Allan all produce sufficient proof of inversion in the free production data, but not for the predicative agreement. This could be related to the findings in both sets of data in Rahkonen and Håkansson's study (2008: 150), which indicate that inversion emerges earlier than predicative agreement in free production. Rahkonen and Håkansson discuss the possibility of predicative agreement placing higher demands on the participant's memory resources for both spoken and written production than inversion does. The main reason for this would be the distance between the subject and the adjective in regard to both words and complexity (2008:150). August, Albert and Allan's results can also be regarded as evidence of the possibility of predicative agreement emerging after inversion in interlanguage as in the study by Rahkonen and Håkansson (2008:150). August has too few or too insecure (-) proof of the predicative agreement which could indicate that the structure is on its way to emerge soon and further suggesting that inversion does emerge earlier. There are no participants who can process the predicative agreement but not inversion. This could also be seen as further evidence of the order of emergence for these two structures. That August, Albert and Allan do

not produce any proof of inversion in the elicited imitation data, when they do so in the free production data, could perhaps be interpreted as evidence of the claim that elicited imitation and spontaneous data involve different mechanisms (Pienemann, 2015: 139), or at least bring out different results for different structures. However, within this thesis, it is not possible to conclude whether this claim is true or not.

The same problem, previously mentioned in regard to Britt's lack of stage 3, could also be underlying the small amount of structures of stage 5 within the free production data. A conceivable reason for the higher number of participants who obtain stage 5 in the elicited data could perhaps be found in that participants may avoid using particular structures of interest to the researcher in free production (e.g. Ellis, 2008, 2009). This is as previously mentioned, not in line with the point of view of Pienemann (2015). It could also be thought possible that the participants are, since the free production data is not produced for this thesis but for the participants' L2 Swedish-classes, more careful and may avoid a structure due to the fact that their texts will be assessed by their teacher. Other features which may result in the presence, or non-presence, of a certain structure could be the objective or the theme of the text. It can be assumed that some tasks generate different structures. A painting description could include more attributive agreement than a more formal text. Another aspect could be the frequency of subordinate clauses in the learners' input. According to Rahkonen and Håkansson (2008:154), structures with high context frequency tend to emerge earlier and also receive more practice i.e. more input. For example, tense, and both attributive and predicative agreement can occur in main clauses as well as in subordinate clauses, while the relative clauses and the preverbal negation are confined to subordinate clauses, and hence the relative clauses are prone to have lower input frequencies (Rahkonen and Håkansson, 2008:154). In regard to the larger variety of the relative clauses of stage 5 in the elicited data, it could be speculated that the object relative clause, both the non-negated and the negated, may be quite unusual to encounter in written L1 texts as well. If this is true then it would also be likely that the input frequencies of these structures are fairly low. Furthermore, since the OR, as mentioned previously, tend to be more difficult for learners to manage due to the distance between the filler and the gap being much greater than in the subject relative clause (Friedmann et al. 2009:71; Ueno and Garnsey, 2007:648), it could be considered that the low number of obtained negated object relative clauses in the elicited data could be due to a combination of the difficulty for learners to manage the OR, and the fact that they also have to be able to process the placement of the negation before the finite verb in the subordinate clause. It should perhaps be stressed once more, that even though none of the participants produce any OR or ORNeg structures in the free production data this does not necessarily prove that they are not able to process the structures, but simply that there are no contexts containing the structure.

As for the research question regarding whether there are any participants who can process stage 5 without stage 4, and so forth, in the free production data; there are participants who can process a later stage without a prerequisite stage. August, Albert, Allan, and Britt can all process stage 4 without

stage 3. Britt's case has already been discussed, and it is not possible to conclude if she can process stage 3, or not, since she lacks obligatory contexts for the stage. It should be noted that she does provide proof of both structures of stage 4, which none of August, Albert or Allan do, as previously discussed.

#### **5.4. Elicited imitation and free production data comparison**

The production of inversion differs in the two sets of data, as discussed in the preceding sections, and approved proof of the structure is more frequently found in the free production data. Interestingly, the reversed is found for the structures of stage 5, where the frequency of obtained proof is higher in the elicited data. Both inversion and the relative clauses concern word order. An assumed reason for the different outcomes could be that inversion has a higher input frequency since it is a structure of the main clause, which would naturally make it a more frequently used structure than a structure found in subordinate clauses, and thus also receive more training than the relative clauses. In the elicited data the learners are provided a stimulus containing the structure which could explain the frequency of relative clauses in this data set. The low frequencies of this structure in the free production data could be, as discussed above, due to avoidance etc. The high degree of inversion in the student papers could be explained by input frequencies, but this does not explain why four of the nine participants do not produce this structure in the elicited data where they are provided with the stimulus. The learners' input frequency should be the same. There is a difference in the amount of structures needed in order to be approved for the stages, i.e. a minimum of two for the elicited data but only one for the free production data. However, all participants who produce sufficient proof of stage 4 in the free production data produce more than two approved proofs. In the elicited data Allan has one approved proof of inversion; August imitates the clause initial adverbial in three of the six contexts containing inversion, but cannot place the subject and the verb in the correct place, or omits the subject. Albert only produces incomplete imitations for all contexts containing inversion. It may be possible that the sentences containing inversion in the elicited imitation test are too difficult due to them also containing other structures of both prerequisite and later structures. Two model sentences contain subject relative clauses, of which one is negated. Nevertheless, the majority of the sentences containing inversion are produced for stage 3 and 4. Given the lack of approved proof in the elicited data for inversion, it may be possible that the tasks provide different results for some structures, which may then be considered as evidence of the point of view of Pienemann (2015).

The results of the final PT stage differ the most in the elicited data and the free production data. The number of participants who obtain stage 5 is much higher in the elicited data (six participants) than in the free production data (three participants), and the variety of different structures of stage 5 is also much greater in the elicited data. All three structures are represented in the elicited data, while

only SRNeg is present in the free production data. The differences in the results of inversion and the structures of stage 5 answers the question of whether there is any difference between the participants' results of the elicited data and the free production data, stated in the initial chapter.

The variation of the structures of stage 5 and the higher number of participants, who can obtain them, could be considered as evidence of the ability of the elicited imitation test to draw on participants' implicit knowledge of specific linguistic features (Ellis e.g. 2008), even on structures with lower input frequencies, or perhaps specifically on these. Thereby the elicited imitation test does provide information about the learners' ability to process structures, which the free production data does, for various reasons, not provide any contexts for (see e.g. Ellis, 2008:5; Sayehli, 2013:157). An example of this could be Britt, who was one of the strongest participants in the elicited imitation data, but she lacks proof of both stage 3 and 5 in the free production. It is likely to assume that she can process these structures in spontaneous production as well due to the extensive amount of years she has studied L2 Swedish.

It should be noted when discussing the comparison of the two types of data that none of the participants, who can process a later stage without a prerequisite stage(s), are the same in the two sets of data. This could indicate that the two types of data may provide different results for different structures and different individuals. Further, it could be assumed that the elicited imitation test does need to be modified in regard to some structures and re-tested to be more accurate and reliable. This would be highly recommended since the EI test was constructed for the initial study of relative clauses in the production of L2 Swedish, as stated in the introductory chapter. Due to the objective of the initial study the amount of relative clauses is much higher than the amount of the other structures analysed. If reconstructing the test should be adjusted in order to improve the reliability of the test.

With the possible exception of Anna, the elicited imitation test of the present study, does not indicate that any participant imitate by rote. However, Anna's results of the elicited imitation test can, as discussed above, be considered as evidence supporting the belief that elicited imitation and free production data involve different mechanisms, or result in rote imitation (Pienemann, 2015:139).

## 6. Conclusion

This thesis has aimed to investigate if an elicited imitation test by itself can be used as a valid instrument for measuring developmental sequences of L2-learners' interlanguage grammar as suggested by Ellis (2008). It should be mentioned that the initial objective of the study was to examine the production of relative clauses in the production of L2 Swedish, and the elicited imitation test was constructed to meet this objective. However, the focus had to be changed due to insufficient amounts of data for the relative clauses. This is reflected in the varying amount of sentences of the analysed structures. To test the ability of the elicited imitation test, two types of data were collected and compared: 1) elicited data, i.e. the elicited imitation test, and 2) free production data in written form, i.e. student papers. To examine the L2-learners' implicit knowledge of their interlanguage grammar, predictions of the grammatical development of L2 Swedish derived from the Processability Theory (PT; Pienemann, 1998) were tested.

In order to collect the elicited data an elicited imitation test was constructed. The test consisted of 29 sentences, of which 23 were analysed within the PT framework. The analysed sentences contain grammatical structures from stages 2-5 of the PT hierarchy for Swedish (Pienemann, 1998; Pienemann and Håkansson, 1999, Håkansson, 2013b). The participants' responses were scored according to whether the response was an exact imitation, if it was incorrect, or if it was an incomplete or null response. Further, the responses of the elicited data were analysed according to whether the participant produced sufficient proof of being able to process the PT stage to which the target structure in the model sentence belonged. A sentence may contain more than one grammatical structure. The model sentences contain verbs marked for both present and past tense, of which all participants could produce sufficient amounts of proof (stage 2). Since a stimulus is given in the elicited imitation test, it is required of the participants to produce at least one minimal pair for the attributive agreement (stage 3), and for the predicative agreement (stage 4), in order for the participant to be approved for these stages. For the syntactic structures, i.e. inversion (stage 4,) and the negated subject relative clause, the object relative clause, and the negated relative clause (stage 5), the participants had to produce at least two proofs of each stage to be approved. The emergence criterion (Pienemann, 1998:153) was used to determine the PT-stages of the L2-learners. The results of the analysis were presented in implicational scales (Håkansson, 2013c).

The nine L2-learners of Swedish, who took part in the elicited imitation test, were all full-time students at Lund University. They had a variety of different L1s, and had studied L2 Swedish for a varied amount of time (1 month and a week – 6 years and 4 months).

The free production data consists of one student paper of each participant. The papers were not written specifically for this study, but for their L2 Swedish-classes. This may of course have a possible effect on the content of the texts, and by that also effect the amount of obligatory contexts of a certain grammatical structure, both positively and a negatively. All papers were analysed for the same grammatical structures of stage 2-5 as the elicited data. The analysis, however, was carried out in a slightly different manner for stage 3 and 4 (Pred) in the free production data. Since the free production was not written for the purpose of this study they were not controlled in any way, and may not contain all structures, hence it is not always possible to find a sufficient amount of contexts for the structures (e.g. Ellis, 2008, Eklund-Heinonen, 2009). Therefore, if a minimal pair is not present, but a systematic application of attributive or predicative agreement can be distinguished the participant will be approved. A systematic application means that the text contains a minimum of three productive contexts, in which there is agreement on the adjective both for singular and plural nouns (Eklund-Heinonen, 2009). Stage 2, stage 4 (Inv), and stage 5 were analysed in the same way as in the elicited data, with the exception of one proof being considered sufficient for the participant to be approved for these stages. As for the elicited data, the emergence criterion (Pienemann, 1998) was used to determine the PT-stages, and the results were presented in implicational scales (Håkansson, 2013c).

The thesis aimed to answer the questions of whether the participants would follow the by PT (Pienemann, 1998) predicted implicational pattern in both sets of data, as well as if there were any differences in the results of the two sets of data, and if there were any participants who could process a later stage without a prerequisite stage(s). The implicational scales of both the elicited data and the free production data demonstrated that the majority of the participants, i.e. six in the elicited data and five in the free production data follow the implicational patterns. There are three L2-learners who can process a later stage without a prerequisite stage in the elicited data, and four in the free production data. None of the participants who can process a later stage without a previous stage are the same in the two sets of data. This would indicate that the two types of data can provide different results for different structures and different individuals. It could be assumed that the elicited imitation test is in need of some modification of some structures, and then needs to be re-tested to continue the search of an answer to whether an elicited imitation test can be utilized on its own. The paper of one L2-learner, who does produce proof of a later stage without a previous stage in the free production data, does not contain any obligatory contexts for the stage and hence it cannot be concluded whether the stage is processable or not. Nevertheless, there are differences, both in regard to the structures and the individual learners, in the results of the two types of data. In regard to the grammatical structures, the greatest differences concern inversion (stage 4), and the relative clauses of stage 5. Inversion is more frequent in the free production data, while the relative clauses are more frequent in the elicited data.

Why the participants can process inversion to a higher degree in the free production data is difficult to determine. It can only be speculated that it could be due to the construction of the elicited imitation test. It should be noted that the earlier emergence of inversion of the two structures of stage 4 cannot be detected in an elicited imitation test. The provided stimuli limit the elicited imitation test to provide such information. The higher frequency of the relative clauses of stage 5 in the elicited imitation material can, however, be explained partly by input frequencies (Rahkonen and Håkansson, 2008), and partly by that the elicited imitation test is capable of producing evidence of structures that may be avoided in free production or may not yet have surfaced in spontaneous data (Ellis, 2008; Sayehli, 2013). The structures can be assumed to have fairly low input frequencies, and therefore not be very frequent in free production. Since none of the participants, who can process a later stage without a prerequisite stage, are the same, this means that there are individual differences of the two types of data as well. It can be assumed that for some participants it may be problematic to distinguish the morphemes in the sentences containing attributive agreement (stage 3), and if reduplicating the test this structure should be given careful consideration. Some participants are, as mentioned above, able to process inversion in the free production data but not in the elicited imitation, and this structure would also need some consideration when constructing an elicited imitation test.

The free production data demonstrates, as previous research (e.g. Ellis 2008, 2009; Eklund-Heinonen, 2009) has stated that free production may lack obligatory contexts for the examined structures, due to e.g. avoidance or the fact that the text may not require the usage of the particular structure the researcher is interested in. Further, the high amount of learners who produce sufficient proof of stage five, and the variety of the different relative clauses in the elicited data prove that elicited imitation test can provide comparable amounts of proof of structures, which may not yet have surfaced in free production (e.g. Sayehli, 2013), or may be avoided in free production. This suggests that the elicited imitation test of this study is a useful complement to free production data in determining learners' developmental stage.

This thesis cannot provide an answer to whether the two types of data in fact do include different mechanisms as suggested by Pienemann (2015). However, some results, such as Anna's production of sufficient proof of stage 5, which cannot be excluded as not being due to rote imitation, may be interpreted in favour of the point of view that elicited imitation data and spontaneous data cannot be compared, and that elicited imitation can result in rote imitation, but there are also results supporting Ellis's (2008) suggestion. Ellis' test (2008:16) did prove to tap into the learners' implicit knowledge, and to provide data comparable to spontaneous data. The elicited imitation test performed in this study can be used to provide information about L2-learners' developmental stages, but preferably as a complement to another type of data e.g. free production, since the results differ somewhat for both structures and individual participants in the two sets of data, and is not truly reliable on its own – at least not yet. The elicited imitation test would need some modifications, as mentioned above, before reduplicating the study and continuing the search for an elicited imitation test that could be a useful

instrument by itself. The modifications regard the attributive and predicative agreement, as well as inversion. The amount of sentences per structure should also be regarded. Nevertheless, the thesis does not exclude the possibility of creating an elicited imitation test, which may provide researchers with a quick and easily administered instrument that will in the future by itself be able to determine the developmental sequences of L2-learners' interlanguage grammar in an accurate manner

## **Appendix - Sentences**

### **Stage 3 - The phrasal procedure.**

1. En svart hund ligger i en hundkoja.
2. Flera svarta hundar leker i en park.
3. Har de inte köpt några vita bilar idag?
4. De har köpt en vit lastbil.

### **Stage 4 - The S-procedure and the target language word order rules.**

5. Hundarna är inte svarta och vita.
6. På lördag ska mannen köpa en vit lastbil.
7. Idag har Kalle inte sett någon vit lastbil.
8. Igår såg pojken några vita hundar leka.
9. Många lastbilar är stora och svarta.

### **Stage 5 - The subordinate clause procedure.**

#### **Subject RC**

10. Mannen som bor i det gula huset är polis.
11. Lisa som var känd av polisen tog klockan.
12. Johans bror äger ett hotell som ligger i Spanien.
13. Utanför Lund bor en flicka som heter Klara.
14. Kalle som körde lastbilen var blond.

#### **Subject RC - negated**

15. Kvinnan som inte bor i huset är polis.
16. Pojken som inte såg lastbilen blev ledsen.
17. Johan har en bror som inte har någon bil.
18. I skogen ligger en stuga som inte är röd.
19. Flickan som var sjuk gick till doktorn.

**Object RC**

20. Mannen som polisen kände tog klockan.
21. Pojken som flickan ville krama åt glass.
22. Bollen som Johan kastade krossade lampan.
23. Lastbilarna som mannen köpte var vita.
24. Kläderna som affären sålde var vackra

**Object RC - Negated**

25. Klockan som mannen inte tog var trasig.
26. Pojken som flickan inte ville krama log.
27. Bollen som Johan inte kastade var liten.
28. Bilen som flickan inte ville ha var röd.
29. Lastbilen som Kalle inte köpte var vit.

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