Cross-linguistic Influence in French Second and Third Language Syntax: An Investigation of L1-English L2-French and L1-Sinhala L2-English L3-French Speakers

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December 2019

Abstract

The present study investigates transfer in L3 acquisition, testing the Cumulative Enhancement (Flynn et al. 2004) and the Typological Primacy (Rothman, 2011) models through an investigation of French adverb placement and object clitics. I compare proficiency-matched L3 and L2 French speakers whose prior languages are L1-Sinhala–L2-English or L1-English. In French, adverbs may appear between the finite verb and the direct object. However, French does not allow adverbs between the subject and the finite verb, whereas, in English, they may. In English, adverbs may not intervene between the finite verb and the direct object, unlike in French. Sinhala, on the other hand, allows both preverbal and postverbal adverb placement. In French, object pronominalization is realized through preverbal clitics. Sinhala also has preverbal object pronouns but additionally allows null pronouns, which are ungrammatical in French. English has only overt postverbal object pronouns. The Cumulative Enhancement Model proposes that the grammar of previously acquired languages enhances subsequent language acquisition. Under this model, the L3 speakers would be more target-like on postverbal adverbs and preverbal clitics than the L2 speakers, due to facilitation from Sinhala. The Typological Primacy Model proposes that the structurally more similar language transfers in L3 acquisition. Under this model, both groups would experience transfer from English, so their performance would be similar. The data was collected via an audio acceptability judgement task, a written acceptability judgment task and a production task. The results for adverb placement support the Cumulative Enhancement Model. However, the results for object clitics suggest that the L2 group is more target-like than the L3 group. This suggests that the results are not compatible with either of the two models. Therefore, I discuss the results in relation to L3 accounts that predict negative transfer from any previously acquired language (Slabakova, 2016; Westergaard et al., 2016).

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Acknowledgements

First and foremost, I would like to express my sincere gratitude to Dr Heather Marsden for her unwavering support, encouragement and never-ending patience without which this thesis would never have been accomplished. She has been an incredibly supportive and instructive supervisor. Her advice and guidance throughout the PhD programme, as well as her teaching and her own research helped and inspired me in ways that go far beyond this dissertation. Being her supervisee has been a great privilege, for which I can hardly be grateful enough.

I am also extremely grateful to Prof Peter Sells for reading the many draft versions of Chapter 3 and helping me to understand how Sinhala syntax works. His constructive feedback and encouragement helped me to understand the crosslinguistic differences between English, French and Sinhala.

I also like to thank Dr Nino Grillo for serving on my Thesis Advisory Panel. Not only he helped me to improve the methodological parts of this thesis, but he also taught me what is expected in academic writing.

I also take this opportunity to thank Prof Jean-Marc Dewaele (Birkbeck University) and Prof Aidan Coveney (University of Exeter). Their comments and guidance helped me at various stages of my research.

Special thanks go to Baratha Gihan Hettiarachchi for drawing the pictures for the production task. All the pictures were creatively drawn.

Many thanks to all my friends at York. In particular, I would like to express my gratitude to Decha Srikongmuang, Youngjae An, Sehrish Shafi and Yasir Almukhaizeem for helping me in various ways.

My special thanks also go to my supportive family. Last but no means least, I would like to thank my wife Dilhara. I could not have done without her.

Declaration

I declare that this thesis is a presentation of original work and I am the sole author. This work has not previously been presented for an award at this, or any other, university. All sources are acknowledged as references.

Chapter 1

Introduction

1.1 Introduction

The key goal of the present thesis is to shed light on the nature of grammar development in third language (L3) acquisition. This goal is achieved by means of a study of L3 speakers with a language profile that has not previously been studied: namely, first language (L1) speakers of Sinhala whose second language (L2) is English, and L3 is French. The research is situated within the relatively new field of L3 acquisition. When "modern" language acquisition research began, from the 1960s and 1970s, it focused first on L1 acquisition (Brown, 1970), and then on so-called "L2'' (Corder, 1971). Moreover, L3 acquisition was once subsumed under the field of L2 acquisition (De Angelis, 2007; Falk & Bardel, 2011; Slabakova & García Mayo, 2016). Therefore, some scholars considered L3 acquisition as essentially another instance of L2 acquisition (García-Mayo Mayo & Rothman, 2012; Rothman & Cabrelli, 2009). However, more recently, there has been a sharp increase in studies on adult multilingualism (Rothman & Cabrelli, 2009) and recent studies have accumulated enough evidence to show that L2 acquisition is different from L3 acquisition (Slabakova & García Mayo, 2016; Falk & Bardel, 2011). In L2 acquisition, the learner depends on the native language, whereas in L3 acquisition more than one linguistic system is available for transfer. More and more scholars are now trying to understand the role of the L1 and the L2 in the L3 development (Lozano, 2003; Leung, 2005; Bardel & Falk, 2007, 2012; Falk & Bardel, 2011; Rothman & Cabrelli Amaro, 2010; Puig-Mayenco & Marsden, 2018). Four logical

possibilities for transfer from previously acquired linguistic systems have been identified (Puig-Mayenco & Marsden, 2018; Cabrelli Amaro, Amaro & Rothman, 2015; Rothman & Cabrelli Amaro, 2010): only the L1 influences the L3 acquisition, only the L2 influences the L3 acquisition, both the L1 and the L2 influence L3 development and the fourth possibility is no transfer from either the L1 or L2. Different models of L3 that correspond to the first three of these four possibilities have been put forward in order to explain the role of L1 and L2 in L3 acquisition: namely, the Absolute L1 Transfer where only the L1 influences the L3 acquisition and the L2 Status Factor where only the L2 influences the L3 development, whereas the Cumulative Enhancement Model, the Scalpel Model and the Linguistic Proximity Model predict transfer from both the L1 and the L2 in the L3 development. I provide more details of these models later in the thesis. All these models consider the following questions.

When and how does transfer take place? Which of the two previously acquired language is privileged? Is transfer selective or wholesale? Is transfer facilitative or non-facilitative? Although these models attempt to answer these questions, they make different predictions about the role of previous linguistic systems in L3 development. For example, evidence in support of the L1 as the sole source of transfer to the L3 comes from the studies by Hermas (2010), Lozano (2003), Na Ranong and Leung (2009) and Jin (2009) whereas evidence in support of the L2 as a privileged source of transfer comes from the studies by Bardel and Falk (2007), Falk and Bardel (2011), Bohnacker (2006) and Leung (2005). Moreover, Flynn et al. (2004), Slabakova (2016) and Westergaard et al. (2016) found evidence to support that both the L1 and the L2 influence L3 development. Therefore, the L3 data available for us at present do not clearly support one model over the rest.

In this context, there is a need for further research that includes different linguistic properties and language combinations (García-Mayo & Slabakova, 2015). Many of the previous studies have taken into consideration language combinations which involve European languages (Puig-Mayenco & Marsden, 2018; Bardel & Falk, 2007, 2012; Falk & Bardel, 2011; Rothman & Cabrelli Amaro, 2010; Slabakova, 2016; Westergaard et al., 2016). However, some of the studies have also focused on non-European language combinations (Cenoz, 2003; Na Ranong & Leung, 2009; Jin, 2009; Leung, 2005). As noted previously, the present study contributes to the field by examining a language combination that has never been considered before. It investigates knowledge of adverb placement and object clitics in L1-Sinhala–L2-English–L3-French interlanguage. To the best of my knowledge, prior L3 studies have not investigated these two properties together.

Sinhala is the majority language spoken in Sri Lanka. It is typologically distant from both English and French. Both of these languages belong to the Indo-European language family, whereas Sinhala belongs to the Indo-Aryan language family. Moreover, Sinhala is related to other south Asian languages such as Hindi, Urdu, Bengali, Punjabi and Marathi (Gair, 1970; Fernando, 1973; Abrew, 1980; Kariyakarawana; 1998; Sumangala, 1988; Henadeerage, 2002). However, Sinhala developed separately from the other Indo-Aryan languages because of the geographical location of Sri Lanka (Gair, 1970; Fernando, 1973, Kariyakarawana, 1998). Modern Sinhala is diglossic and demonstrates two distinct varieties: colloquial Sinhala and written Sinhala (Paolillo, 1992). Colloquial Sinhala is used in day-to-day conversations, whereas written Sinhala is used in all written documents. Sinhala has seven vowels, eighteen consonants and two glides (Kariyakarawana, 1998; Sumangala, 1988). The articulatory characteristics of the vowels are given in Table 1.

The consonant and glide inventory in Sinhala is presented in Table 2. Sinhala being a left-branching language, differs from both English and French. I provide more syntactic details about all three languages later in the thesis.

Table 1. Sinhala vowel classification

	Front		**Central**	**Back**	
	Spread	**Round**		**spread**	**Round**
High	I				U
High-mid	E				O
Mid			ə		
Low-mid	Æ				
Low					A

Table 2. Inventory of consonants and glides

Consonant	**Labial**	**Dental**	**Alveolar**	**Retroflex**	**Palatal**	**Velar**	**Glottal**
stop	p/b	t/d		ʈ / ɖ		k/g	
Affricative					c/j		
Nasal	M		N			ɳ	
Lateral			L				
Flap			R				
Fricatives	F		S		ʃ		h
Glides	W				y		

However, Sinhala and French share structural similarities with respect to adverb placement and object pronominalization. Sinhala and French adverbs may occur between the finite verb and its direct object as in (1) and (2). Therefore, both languages allow S-V-Adv-O order. However, S-V-Adv-O order is not allowed in English as in (3). Moreover, in Sinhala and French, object pronominalization is realized preverbally as in (4) and (5). However, English differs from Sinhala and French with respect to object pronominalization as shown in (6). Based on the structural similarities between French and Sinhala, the present study argues that the L1-Sinhala–L2-English–L3-French speakers will be more target-like than L1-English–L2-French speakers on adverb placement and object clitics.

(1) Il regarde **souvent** la télé.
he watches **often** the TV
'He often watches TV.'

(2) eyya balan-e **nethara** nupavahiniya.
he look-EMP **often** nupavahiniya
'He often watches TV.'

(3) *He watches often TV.

(4) Je le lis.
I it read
'I read it.'

(5) mamə **ekka** kiyawanawa.
I **it** see-PRS.1.SG
'I read it.'

(6) *I it read.

L3 French acquisition studies are still scarce (Hermas, 2010, 2015; Kong, 2015; Ben Abbes, 2016). Therefore, the findings of this study will further enhance our understanding of non-native acquisition of French, by focusing on French as an L3. To identify how transfer could manifest in L1-Sinhala–L2-English–L3-French interlanguage, this study tests two competing L3 models: the Typological Primacy Model (Rothman 2010, 2011) and the Cumulative Enhancement Model (Flynn, Foley & Vinnitskaya, 2004). A detailed account of these models is given later in the thesis. A brief outline of each chapter now follows.

1.2 Organization of the thesis

Chapter 2 details the L3 and L2 acquisition background to the present research. It begins by outlining the competing models of L3 acquisition, namely the Absolute L1 transfer (Lozano, 2003; Leung, 2005; Na Ranong & Leung 2009, Jin 2009 and Hermas 2010), the L2 Status Factor (Bardel & Falk, 2007, 2012; Falk & Bardel, 2011), the Cumulative Enhancement Model (Flynn et al., 2004), the Typological

Primacy Model (Rothman 2010, 2011), the Scalpel Model (Slabakova, 2016) and the Linguistic Proximity Model (Westergaard et al., 2016). The chapter then reviews some of the L2 and L3 French acquisition studies on adverb placement and object clitics.

In Chapter 3, I first explain the word order differences in English, French and Sinhala with respect to adverb placement and object pronominalization. I then examine how syntactic theory can underpin the word order differences in the three languages.

Chapter 4 presents the research questions and hypotheses on L2 and L3 French related to adverb placement and object clitics. Additionally, this chapter also presents the research questions and hypotheses on L2 English as it was also decided to investigate whether the L1-Sinhala–L2-English–L3-French speakers are target-like on the corresponding two properties in their L2 English.

Chapter 5 details the experimental research design used in this study to empirically examine knowledge of adverb placement and object clitics in L2 and L3 French and L2 English acquisition. In this chapter, I first give a detailed account of the participants' profile, and the different proficiency tests that the participants have completed. Secondly, I outline the language background questionnaire administered to the participants. Finally, I detail the experimental test battery, along with the rationale behind decisions relating to each of the tasks.

The results of the experiment are reported in Chapter 6. The test battery endeavours to test knowledge of adverb placement and object pronominalization in French and English. The results for L2 and L3 French are reported first before turning to the results for L2 English.

In Chapter 7, I discuss the results presented in Chapter 6 in light of the hypotheses outlined in Chapter 4. I first consider the hypotheses on L3 French before

turning to the hypotheses on L2 English. Secondly, I evaluate the Cumulative Enhancement Model and the Typological Primacy Model in light of the new data from the present study. Thirdly, I expand the discussion to consider other models (the Scalpel Model and the Linguistic Proximity Model). Finally, this chapter discusses the limitations of the study and gives directions for future research.

Chapter 8 provides a conclusion to the thesis by summarizing the main findings.

Chapter 2

Models of L3 acquisition and previous research on adverb placement and object clitics in French

2.1 Introduction

As explained in Chapter 1, the present study examines knowledge of adverb placement and object clitics in L3 acquisition. Therefore, it is noteworthy to review the models of L3 acquisition and outline the main findings of previous L3 acquisition studies on object clitics and adverb placement in French. This chapter is organized as follows: first, it provides a brief introduction to the field of L3 acquisition and then the influential models of L3 acquisition are reviewed. Finally, it discusses the results of recent L2 and L3 acquisition studies on adverb placement and object clitics in French.

2.2 Third language acquisition

Cenoz (2003) states that L3 acquisition refers to the acquisition of a non-native language by learners who have previously acquired or are acquiring two other languages. However, the first problem that scholars encounter when referring to the L3 acquisition literature is that there is no clear definition of the term 'L3 acquisition' (García Mayo & Rothman 2012). One reason for not having well-established terminologies in L3 acquisition literature is primarily because it is still an emerging field (De Angelis, 2007). For a long time, L3 acquisition studies were subsumed under the field of L2 acquisition (De Angelis, 2007; Falk & Bardel, 2011; Slabakova & García Mayo, 2016). Many scholars have treated L3 acquisition as essentially another instance of L2 acquisition (García-Mayo Mayo & Rothman, 2012; Rothman & Cabrelli, 2009) and some scholars believed that there is no difference between an L2

and an L3, under the assumption that all languages acquired after an L1 are second languages (Mitchell & Myles, 1998). Therefore, De Angelis (2007) points out that many researchers in the field of L2 acquisition have conducted studies on L3 acquisition without knowing they are investigation L3 learners. Moreover, Slabakova and García Mayo (2016) state that a review of studies done over the past decades may reveal that many of L2 acquisition studies are in fact L3 acquisition studies as the participants are often L3 speakers, at least in a chronological sense.

Being a relatively new field, studies on L3 acquisition do not always report converging evidence regarding the ongoing debate in the field, which concerns the question of what constitutes an L3? (Amaro, Flynn, & Rothman, 2012). Cenoz (2003) and De Angelis (2007) argue that adult L2 learners are very different from adult L3 learners as L3 learners have a greater number of linguistic representations available for them at the start of L3 acquisition as compared with L2 learners. In L3 acquisition, with the possibility of transfer from two linguistic systems, determining the transfer source is not always straightforward. However, for an L2 learner, L1 is the main possible source of transfer in L2 acquisition.

Apart from understanding the nature of L3, researchers are attempting to ascertain the other factors that play decisive roles in L3 acquisition. Slabakova and García Mayo (2016) identify three factors which play a pivotal role in L3 acquisition. One factor is the cognitive and psychological prominence of the languages from which transfer occurs. They maintain that researchers need to consider the role of the native language and the L2 with respect to psychological prominence and language competency. It is commonly agreed that transfer is most likely to occur between languages that are closely related (De Angelis, 1999, 2007; Cenoz, 2001; Dewaele, 1998). Linguists formally define the relationships between languages, drawing on

research. However, the L3 learner defines the relationship between L1, L2 and L3 based on perceived language distance. This is the distance that the learner perceives to exist between languages. However, this distance may or may not actually exist (De Angelis, 2007; Dewaele, 1998). In the literature, the perceived language distance is often referred to as psychotypology (Rothman, 2012). Competency is another element of the "cognitive and psychological prominence" factor. Competency of the previously acquired languages is also central to make predictions about the possible transfer in L3 interlanguage (Dewaele, 1998).

The second factor relates to the structural characteristics of the L1, L2 and L3. If the linguistic properties overlap in L1, L2, and L3, they will be acquired faster and accurately (Slabakova & García Mayo, 2016; Westergaard et al., 2016). The third factor is the nature of the linguistic input; for example, only positive evidence coming from abundant and comprehensible linguistic input can change the L3 learner's grammar (Slabakova & García Mayo, 2016; Slabakova, 2016).

Another question that concerns L3 researchers is the issue of determining what inclusive and exclusive criteria should be considered when recruiting participants. Amaro et al. (2012) identify age and competency of previous languages as deterministic selection criteria for participants. For example, how do we classify early childhood bilinguals (simultaneous and heritage) acquiring an additional language? Are they adult L2 learners or L3 learners? How do we classify adult learners who learned two additional languages (apart from L1) to the highest proficiency level and attempting another language? Are they L3 learners or L4 learners? Moreover, Slabakova (2016) points out that in an L3 study, it is essential to ascertain the L2 competency of the L3 learners to make predictions about L2 transfer.

As mentioned earlier, L3 acquisition studies try to understand what constitutes L3 interlanguage, which is the fundamental question that many researchers attempt to address. With respect to L3 acquisition of morphosyntax, different L3 acquisition models have been proposed. However, they make different predictions about the role of existing linguistic systems in L3 acquisition. In other words, the current L3 acquisition models are very incongruous. One model predicts that L1 plays a privileged role in L3 acquisition (Hermas, 2010; Lozano, 2003; Na Ranong & Leung 2009; Jin, 2009) while another model argues that L2 plays a privileged role in L3 acquisition (Bardel & Falk, 2007, 2012; Falk & Bardel, 2011). Moreover, some models maintain that L1 and L2 transfer can be facilitative and non-facilitative (Bardel & Falk, 2007; Slabakova, 2016). However, not all models predict both facilitative and non-facilitative transfer from prior linguistic systems (Flynn et al., 2004). Further, some models maintain that transfer is selective and occurs property by property (Slabakova, 2016, Westergaard et al., 2016, Flynn et al., (2004). In the next section, I review the current L3 acquisition models and elucidate the predictions that they make.

2.3 Models of L3 acquisition.

2.3.1 The Absolute L1 Transfer

L2 acquisition literature clearly demonstrates the L1 transfer is possible in L2 acquisition (Vainikka & Young-Scholten, 1996). Similarly, Lozano (2003), Leung (2005), Na Ranong and Leung (2009), Jin (2009) and Hermas (2010) have proposed that L1 plays a privileged role in L3 acquisition. The Absolute L1 Transfer assumes that L1 serves as a filter blocking access to L2 grammar. Several studies investigating L3 development in the initial state have found empirical evidence to support this model.

Na Ranong and Leung (2009) examined knowledge of overt and null objects by L1-Thai–L2-English–L3-Mandarin Chinese speakers. Although the authors have decided to conduct this study, it is not very clear in theoretical syntax, whether Chinese and Thai have the same underlying status with respect to null objects (Slabakova, 2016). Considering the conflicting views about the status of null/overt object pronouns in Chinese and Thai, the authors devised an interpretation task in Chinese and Thai to native speakers of Chinese and Thai. They found that null and overt subjects are similar in the two languages. The experiment included twenty L3 and seventeen L2 speakers (L1–English–L2 Mandarin-Chinese speaker). The results of the non-native speakers were compared to a control group which had 20 native Mandarin Chinese speakers. The participants completed an offline written interpretation task that consisted of single bi-clausal sentences without context involving embedded null or overt object in Chinses and Thai, which was followed by a question in English about the possible referent(s). The Thai version of the interpretation task was only administered to the L3 speakers which they completed after the Chinese version.

The results of the interpretation tasks show that the native Chinese speakers' accuracy rate on null objects was 62 whereas the L3 group had similar results (61%). Surprisingly, the L2 speakers' accuracy rate of null objects was 62%, which shows that the three groups are quantitatively similar. However, when the results for overt and null objects taken together, the L3 speakers were more nativelike on two properties. Moreover, they differed significantly from the L2 speakers.

However, a similar significant difference was not found in the L2 group. Based on these results, the authors argue that the L3 speakers and L2 Chinese speakers differ in term of how they interpret null objects and the overt objects in the same task.

Therefore, the authors maintain that Thai LI properties played a privileged role in the acquisition of overt and null objects in Mandarin Chinese. A few limitations can be found in this study. The authors report that the Chinese proficiency of the L3 speakers (beginner and pre-intermediate L3 learners). However, the Chinese proficiency of the L2 group is not reported in the study. It not clear whether the two groups are homogeneous with respect to Chinese proficiency. Moreover, the data derived from one experimental task. If the study had included more than one task, it could have provided more evidence to draw robust conclusions.

Jin (2009) looked at the status of null objects in L1-Chinese–L2-English–L3 Norwegian interlanguage. Null objects are only licensed in Chinese, but English and Norwegian do not. The experiment also included L1 Norwegian speakers (*n*=14) as a control group. The L3 speakers (*n*=14) completed a proficiency test in English. However, their proficiency in Norwegian was decided based upon the length of formal instruction in Norwegian and the length of stay in Norway. Accordingly, the participants were broken into three proficiency levels: beginner, intermediate and upper-intermediate. The data was collected via an acceptability judgement and sentence correction task in Norwegian. The participants also completed an English version of the same task. The author tested null objects in root clauses (as in 7) and embedded clauses (as in 8). The tasks included sentences for each condition and fifteen distracters. English and Norwegian tasks were the same, but the Norwegian sentences were not direct translation of the English sentences.

(7) I immediately recognized the students, and later Mary also recognized.
(8) John said those students were in the library, but I told him I didn't find there.

The native speakers of Norwegian strongly rejected null object sentences. However, the L3 speakers were more accurate in rejecting English null objects (72%)

than they were in rejecting Norwegian null objects (57%). The author argues that the results of the study provide evidence of an L1 effect. This study depends on the data derived from one task. If Jin had employed more than one task to collect L3 data, then, the study would have given a broader picture of this phenomenon.

Hermas (2015) investigated knowledge of restrictive relative clauses in L3 English. The L3 speakers in this study were native Moroccan Arabic speakers with L2 French. With respect to the relative clause formation, French and English are similar compared to Moroccan Arabic. According Hermas, French and English form relative clauses similarly. They use operator movement to form relative clauses, whereas Moroccan Arabic uses the resumptive strategy to form relative clauses. The experiment included four groups: French native speakers (*n*=15), English native speakers (*n*=12), pre-intermediate L3 speakers of English (*n*=11) and advanced L3 speakers of English (*n*=15). The data was collected via acceptability judgement tasks. The participants completed acceptability judgement tasks in French and English. The pre-intermediate speakers were target-like on definite relative clauses (as in 9) as these complementizer phrases are grammatical in the three languages. The advanced group was also target-like on definite relative clauses. However, there was a significant difference between the pre-intermediate L3 speakers and the advanced L3 speakers for definite relative clauses.

The most problematic structure for the L3 speakers (pre-intermediate and advanced groups) was the indefinite subject relative clauses (as in 11) which are ungrammatical in both French and English. However, the participants accepted the latter structure in the experiment under the influence of Arabic.

(9) The man that phone today was my boss.
(10) A story that I am reading is wonderful.
(11) a dog ø attacked Alex ran way.

The results showed that even the advanced L3 speakers had reverted back to L1 influence. Their accuracy on indefinite relative clauses with a null complementizer was relatively low at 50%. Even in the French acceptability judgement task, the participants accepted indefinite subject relative clauses, suggesting that the property is not established in French either. Therefore, Slabakova (2016) argues that a property not acquired in the L2 cannot exert any influence on the L3. Hermas (2010) also investigated knowledge of adverb placement and negation in L1-Morrocan Arabic–L2-French–L3 English interlanguage and found similar results (more details in Section 2.5).

In summary, the studies outlined in this section shows the native language could have a privileged status in L3 acquisition. However, some studies have shown that L2 can also play a significant role in L3 acquisition. The next section will consider these studies.

2.3.2 The L2 Status Factor

The L2 Status Factor (Bardel & Falk, 2007, 2012; Falk & Bardel, 2011) suggests that L2 plays a stronger role than the L1 in the early stages of L3 morphosyntactic development. Several studies investigating L3 development in the initial state have found empirical evidence to support this model.

Bohnacker (2006) investigated the production of non-subject-initial or verb-second (V2) word order in L1 Swedish learners of German. Bohnacker (2006) focused on six participants out of which three participants spoke English, and the other three had very limited competence in English. The data from the six informants were collected at three different times of his study. Both Swedish and German are V2

languages, but English is non-V2 language. According to the author, the learners who spoke English, transfer their L2 property into their L3 German. The results showed that the participants who spoke English differed significantly from the other participants. The participants with L2 English used a significantly higher percentage (41%) of subject initial structures in their production, whereas those who did not speak English never did (0%).

Bardel and Falk (2007) investigated the placement of negation in L3 Swedish and Dutch. According to the authors, because of the V2 property, in Swedish and Dutch all finite verbs are raised to Cº, while the negation remains in its original position above the VP as in (12) and (13). In this study, the participants were learning either Swedish or Dutch as L3 and had a V2 language as either L1 or L2 and a non-V2 language as the other previously acquired language. The participants were introduced Swedish negative sentences, and they were encouraged to use negation in various contexts. The participants were audio-recorded on two occasions. The study was based on two groups of participants. The first group consisted of five learners of Swedish as their L3, whereas the second group was made up of four learners of either Dutch or Swedish as L3. In the first recording, the participants whose L2 is a V2 language produced 12 post-verbal negation out of 15 sentences, whereas the participants whose L2 is a non-V2 language produced only 3 post-verbal negation out of 14 sentences. The latter group produced ungrammatical preverbal negation as illustrated in (14) with an example from Swedish. In the second recording, the results were similar. The participants whose L2 is a V2 predominantly used postverbal negation (14/15 cases) whereas the other group used a very few postverbal negations (5/14). The results suggest that the L3 learners whose L2 was V2 were more target-like on negation that

the learners whose L1 was V2. Therefore, the results show that the L3 speakers have not experienced facilitative transfer from their L1.

(12) Ginger pratar inte
Ginger speaks NEG
'Ginger doesn't speak'

(13) Ginger spreekt niet
Ginger speaks NEG
'Ginger doesn't speak'

(14) *Jan inter studerar engelska
I NEG study English
'I don't study English.'

Falk and Bardel (2011) further look into the role of L2 in L3 acquisition at initial state. They investigated knowledge of object pronouns placement by L3 intermediate speakers of German with two different L1 backgrounds. Twenty-two participants took part in the experiment and they were divided into two equal groups: L1-French–L2-English–L3-German speakers (*n*=11) and L1-English–L2-French–L3-German speakers (*n*=11). The participants were advanced L2 French or L2 English speakers. The authors tested the placement of object pronouns in main and subordinate clauses in German. The object pronoun placement is preverbal in French and postverbal in English. The object pronoun placement varies in German between postverbal in main clauses (as in 15) and preverbal in subclauses (as in 16). Therefore, the placement of object pronoun in main clauses corresponds to the English pattern. However, the placement of object pronouns in subordinate clauses corresponds to the French word order.

(15) Ich sehe ihn
I see him
'I see him'

(16) Du weisst dass ich ihn sehe.
you know that I him see
'You know that I see him'

The data was collected via a grammaticality judgement and correction task. The task included sixty experimental sentences. The participants were asked to judge, under time pressure, whether sentences were grammatical or ungrammatical, and if ungrammatical to correct them. The results of the main clause condition showed that the L1-French–L2 English–L3-German speakers detected ungrammaticality in sentences (ungrammatical preverbal object pronouns) with a significantly higher accuracy rate at 93.1% whereas the L1-English–L2 French–L3 German speakers only had an accuracy rate of 28.7%. The low accuracy by the L1-English group suggests that there is no facilitative transfer from L1 English whereas the first group (L1-French–L2 English–L3-German speakers) experience facilitative transfer from L2 English. The results for the subordinate clause condition evinced that L1-English–L2-French–L3 German speakers detected ungrammatical postverbal object pronouns better than the L1-French–L2 English–L3-German speakers. Based on these findings, Falk and Bardel (2011) argue that the two groups have experienced facilitative transfer from their L2 in L3 acquisition.

Leung (2005) examines the L2 and L3 acquisition of the Determiner Phrase (DP) in French by two groups: an L2 group and an L3 group. The L3 group consisted of L1-Chinese–L2-English–L3-French speakers (*n*=41) whereas the L2 group had L1-Vietnamese speakers with no English background (*n*=16). The experiment also included two control groups: L1 French speakers (*n*=22) and L1 English speakers (*n*=27). The study tested the following functional categories: Determiner, Number [Num], feature [±definite] and the feature strength of Number. Chinese and Vietnamese differ from English and French with regards to nominal properties. English and French both have DP projections, while Chinese and Vietnamese do not. There is [±definite] feature in French and English. However, such a formal feature is

lacking in Chinese and Vietnamese. The feature strength of Number is strong in French but weak in English. There is overt N-to-Num movement in French and also in Vietnamese (adjectives are postnominal). However, there is no N-to-Num movement in English (adjectives are prenominal). The data was collected via 5 tasks: an elicited oral production task, an elicited written production task, a grammaticality judgement and correction task, a picture identification task and a multiple-choice task. Let us now turn to the results. The use of definite/indefinite articles by the L3 speakers was at 91% in the production task whereas Leung classes the L2 speakers' rate of accurate use (71%) as relatively low by contrast. Moreover, the mean rate of omission of definite/indefinite articles among the L2 speakers was significantly high (29%) in the elicited written production task compare to that of the L3 speakers (2.84%). Moreover, the acceptance rate of null determiners by the L3 speakers was significantly lower (2.84%) than that of the L2 group (2.84%). However, with regard to the placement of adjectives, the L2 speakers performed better than the L3 group due to facilitation from Vietnamese. For the L3 speakers, the L2 English grammar is facilitative in all nominal properties except adjective placement. Therefore, based on these observations, Leung (2005) suggests that L2 transfer is privileged in L3 acquisition.

2.3.3 The Cumulative Enhancement Model

The Cumulative Enhancement Model (CEM) proposes that any previously acquired syntactic structure, both from the learner's L1 and L2 are available in L3/Ln acquisition and it predicts that prior language knowledge can enhance subsequent language acquisition or remain neutral. In other words, this model does not predict non-facilitative transfer from either the L1 or L2. The pioneering study by Flynn et al., (2004) on the production of relative clauses by L1-Kazakh–L2 Russian–L3 English speakers provides empirical evidence to support this model.

Flynn et al., (2004) investigated two research questions in this study: (1) Do the properties of the L1 grammar alone determine language learning in L3 development? In other words, they wanted to find out whether the L1 pays a privileged role in L3/n acquisition; (2) can grammatical properties of prior linguistic systems determine subsequent patterns? The second research question considers whether syntactic knowledge acquired by learners in one language would be retained in the new language.

An earlier study by Flynn and Lust (1981) looked at English monolingual children acquiring English relative clauses using an elicited imitation task. In this study, the children were presented with three types of relative clauses that they were asked to reproduce by repeating a whole utterance. The first two clauses were embedded with antecedents as in (17) and (18) whereas the third sentence was a free relative clause as in (19) (Flynn et al. 2004, p. 6). The authors state that the children between 5 to 7 use free relative clauses instead of the clauses with antecedents.

(17) Big bird pushes the balloon [which bumps Ernie]
(18) Ernie pushes the thing [which touches big bird]
(19) Cookie Monster hits what pushes Big Bird

And then, Flynn et al., (2004) looked at a study by Flynn (1983) which investigated the acquisition of three types of English relative clauses mentioned above by two adult groups: L1-Japanese–L2 English speakers and L1-Spanish–L2-English-speakers. The results suggest that the L2 Japanese speakers are similar to the L1 English monolingual children in the previous study. English is a head-initial, right-branching language, so relative clauses occur to the right of their head noun. In Spanish, relative clauses occur after the head noun (to the right of the head noun), as in English, but Japanese being a head-final, left-branching language, relative clauses occur to the left of the head noun. Therefore, Flynn et al., (2004) argue that the L1

English-speaking children and the L2 Japanese speakers learning English had no prior grammatical experience with a head-initial, right-branching language. The L1 children had to determine this parametric value. With regards to the L1 Japanese speakers, they had to establish this parametric value for English because they did not have experience with a head-initial, right-branching grammar. The L1 Spanish speakers, on the other hand, used clauses with antecedents. As discussed earlier, they have experience with head-initial, right-branching grammar (as English and Spanish are both head-initial, right-branching languages). Based on the findings, Flynn et al., (2004) argue syntactic structures acquired in L1 are extended to L2 and the study by Flynn et al., (2004) tries to ascertain whether the syntactic structures learnt in L1 and L2 can be extended to an L3.

Flynn et al. (2004) examine the production of relative clauses of English by adult learners whose L1 is Kazakh and whose L2 is Russian. There were 33 adults participated in the study[1]. They all had learnt English as an L3. The study tested the acquisition of three types of English relative clauses given in (17-19) via an elicited imitation task. Kazakh is a head-final, left-branching language, whereas Russian is similar to English, which is a head-initial, right-branching language. The researchers hypothesized that the Kazakh speakers would be influenced by either Kazakh or Russian word order when building English relative clauses. Their results demonstrated that the adult learners' production of English relative clauses was more productive than the young learners. They were similar to the Spanish learners of the previous study. The researchers conclude that adult learners' previous experience in the L2 (Russian) had influenced the development of relative clauses in English. Moreover,

[1] Flynn et al. (2004) also included 10 children in their study but I focus here just on the investigation of the adults

Flynn et al. (2004) argue that the children are only productive with free relative clause because unlike adults, they do not have access to grammatical features of their L2 (Russian) grammar. The findings of the research helped the authors to develop the CEM. Unlike the Absolute L1 Transfer and L2 Status Factor models, the CEM argues that L3 syntactic transfer is selective and comes from either the L1 or the L2. The model claims that the acquisition process is 'cumulative' and the previously acquired languages will have a 'bootstrapping effect' that can enhance subsequent language acquisition. This means that transfer is either facilitative or remains neutral.

2.3.4 The Typological Primacy Model

The Typological Primacy Model (TPM) has been developed by Rothman in a series of studies (Rothman 2010, 2011, 2015) and it shares a common concept with the CEM as both models claim that the L3 learner can transfer from both L1 and L2 at the initial stage of L3 language acquisition. Moreover, the model claims that the initial stage transfer for multilingualism occurs selectively, depending on psycho-typological proximity between the languages in contact (Rothman 2011:211). Unlike the CEM, the TPM predicts both facilitative and non-facilitative transfer.

The basic concepts of the TPM were introduced by Rothman and Cabrelli Amaro (2010). The main objective of their study was to test the role of typology in L3 acquisition. They tested the CEM and the L2 Status Factor by comparing acquisition of null-subject parameter by two groups of L3 speakers: L1-English–L2-Spanish–L3-Italian speakers and L1-English–L2-Spanish–L3-French speakers. The authors explain that the CEM does not predict non-facilitative transfer in L3 acquisition and they wanted to develop a model that can also account for non-facilitative transfer. Rothman and Cabrelli Amaro (2010) designed a study with an interesting language combination. The Null-Subject parameter does not operate in English and French. Spanish and

French are Romance languages, and they are typologically close to Italian. However, the Null-Subject parameter operates only in Italian and Spanish. The data was collected via two tasks: a grammaticality judgement correction task and a context sentences matching task. The study predicts that L3 French speakers and L3 Italian speakers would experience transfer from the L2 Spanish due to these three languages all being Romance languages. However, such transfer would be non-facilitative for L3 French while facilitative for L3 Italian. The predictions of the study were met. The L3 French did not experience transfer from L1 English though it would have been beneficial for their L3 development. The authors concluded that typological proximity is a significant variable in L3 acquisition.

Rothman and Cabrelli Amaro (2010) question whether L2 always transfers into L3 or whether transfer occurs based on the typological proximity between Spanish, Italian and French. To answer this question, Rothman presented a modified methodology in his subsequent studies. Therefore, the study by Rothman (2010) tries to find out whether L2 always plays a significant role in L3 acquisition or whether the transfer is determined by typological proximity between the languages involved. This study examined knowledge of word order restrictions related to declaratives and interrogatives in L3 Brazilian Portuguese by L1-English–L2-Spanish-L3-Brazilian Portuguese speakers and L1-Spanish–L2 English–L3-Brazilian Portuguese speakers. The two groups were at the initial stage of L3 Brazilian Portuguese acquisition. English has a relatively fixed SVO word order. However, some Romance languages allow relatively free word order patterns. Subject-verb inversion in questions is allowed in all Romance languages, including European Portuguese. In Spanish, VS order is allowed in declaratives and is required in interrogatives. However, In Brazilian Portuguese, SVO order occurs in declaratives and interrogatives. Therefore,

with regards to the word orders in declaratives and interrogatives, English and Brazilian Portuguese are similar. However, Brazilian Portuguese and Spanish are typologically similar. The results showed that both the L1 Spanish and L2 Spanish groups experienced non-facilitative transfer from Spanish. Therefore, the author argues that the results do not support either the CEM or the L2 Status Factor. Rothman (2010) argues that L2 does not play a privileged role in L3 acquisition as predicted by the L2 Status Factor. The transfer from English would have been facilitative as predicted by the CEM. However, the groups did not experience facilitative transfer from English. Therefore, Rothman and Cabrelli Amaro (2010) argue that their findings support the TPM.

Rothman (2011) provides further evidence to support the TPM. He examined the domain of adjective interpretation by two groups: a group of intermediate L3 speakers of Spanish (*n*=12) and a group of L3 intermediate speakers of Brazilian Portuguese (*n*=15). The L3 Spanish speakers had Italian as their L1 and English as their L2. The L3 Brazilian Portuguese speakers were English native speakers and their L2 was Spanish. Unlike English, the Romance languages of this study (Spanish, Italian and Brazilian Portuguese) have grammatical gender. In these three languages, nouns are inflected overtly for gender and number, and overt morphological marking is also visible on the modifying determiner. In English, adjectives are placed in prenominal position while in Romance languages adjectives are normally placed in post-nominal position. However, Romance languages do allow adjectives to appear in prenominal position, entailing a change in the meaning. Therefore, Rothman (2011) points out that the meanings of adjectives are determined by the placement of the adjective. The first experiment was a semantic interpretation task in which the participants read a short sentence that contained a DP with either a pre-nominal or a

post-nominal adjective. The participants were asked to select the meaning of the adjectives from a given list. This task consisted of two versions: Spanish and Brazilian Portuguese. The second task was a context-based collocation task. In this task, the participants read a short story and filled in either the pre-nominal or post-nominal blank with a given adjective. The results showed that the L3 Spanish speakers and L3 Brazilian Portuguese speakers did not differ from each other and the two groups had target-like performance in the two tasks. Therefore, Rothman (2011) argues that the transfer did not solely come from the L2, but the language that is (psycho)typologically similar to the target language. In addition to the studies that I have discussed, a number of other studies have supported the TPM, which include Foote (2009), Iverson (2009) and Kulundary and Gabriele (2012).

The models that I have outlined so far make predictions on linguistic development in L3 acquisition at the initial stage. The next section considers other models that predict transfer from both L1 and L2.

2.4 Other models that predict transfer from both L1 and L2

2.4.1 The Scalpel Model

In contrast to the models discussed so far, which primarily, focus on the initial stage of L3 acquisition, Slabakova (2016) proposed the Scalpel Model as a way of addressing how linguistic development unfolds beyond the initial stages. According to the author, a need for a new model arises as some of the findings cannot be explained by the previous models.

The Scalpel Model incorporates some of the features of the CEM and the TPM. Like the CEM and the TPM, this Model predicts that both the L1 and L2 are available for the L3 speaker. However, as opposed to the Absolute L1 Transfer and the L2 Status Factor, the Scalpel Model maintains that none of the previously acquired

languages plays a privileged role in L3 acquisition. This model is based on the notion that the multilingual linguistic competence is an amalgamation of sub-grammars coming from all previously acquired languages. In order words, the L3 grammar is made up of a combination of L1, L2 and L3 grammars. Moreover, this notion is also endorsed by Amaral and Roeper (2014) in their proposal of multiple grammars and second language representation. The Scalpel Model argues that the transfer occurs property-by-property and depends on the structural proximity between the previous languages and the target L3. Already acquired grammars act with a "scalpel-like precision'' to extract L1 and L2 option relevant to the property acquired in L3 acquisition (Slabakova, 2016. p. 6). Based on this notion, the model rejects the possibility of wholesale transfer in L3 acquisition.

Rothman (2015) argues that wholesale transfer is economical as it will reduce the cognitive burden for the L3 learner. However, Slabakova (2016) points out that wholesale transfer from one language means that the parser is blocking off other systems already available for transfer. Therefore, she maintains that wholesale transfer makes L3 acquisition more costly. The Scalpel Model also considers additional factors affecting transfer beyond the L1 transfer and L2 transfer. The model maintains the scalpel-like precision may be affected by other factors such as availability of unambiguous input, negative evidence and complexity of the L3 property. According to Slabakova (2016), these factors influence the success or failure of acquisition of a property in L3.

Availability of clear L3 input is considered as one of the influential factors. Slabakova (2016) explains that if a specific syntactic property is readily available for L3 learners, it makes it easier for them to learn that property. In other words, syntactic properties that are unambiguous and salient in the input, perhaps due to high

frequency, are acquired faster than less salient properties. Slabakova (2016) support this claim by referring to the study by Slabavoka and Garcia Mayo (2015). In this study, the authors compare two groups of L3 speakers: L1-Basque–L2-Spanish–L3-English speakers and L1-Spanish–L2-Basque –L3-English speakers. This study tested knowledge of null objects and topicalization in English. According to Slabakova (2016), with respect to topicalization, Basque and English work similarly (as in 20), allowing fronting of an object or another constituent without a resumptive clitic in the clause-internal (argument) position. However, Spanish has a clitic left dislocation construction, where the topicalized (fronted) object is doubled by an agreeing clitic (20b). Object drop is allowed in Spanish but not in English.

(20) a: Did Susie like the wine?

b: The wine she didn't drink (*it). She stuck to lemon ices.

Slabavoka and Garcia Mayo (2015)found that the L1 Basque speakers and L1 Spanish speakers successfully rejected null objects in English. However, topicalization in English was problematic for the two groups. The author attributed non-target-like performance on topicalization to insufficient availability in the L3 English input. The author explains that topicalization is rare in English, and the two groups are not exposed to it with sufficient frequency in order to acquire it. The author also maintains that the availability of negative evidence in the input helps the learners to acquire a syntactic property faster. Slabakova (2016) explains that negative evidence is evoked when an overt correction of erroneous leaner production is provided (p. 6), and she argues that there is plenty of negative evidence in the English input to understand that the null objects are not permitted in English. However, negative evidence is scarce with respect to topicalization in English. According to the author, this is the reason why the learners showed different results with regards to the two properties.

Given the youth of the Scalpel Model, there are limited studies that have tested it. However, Clements and Dominguez (2018) provide evidence in favour of this model. They tested the acquisition of overt subject pronouns and null subject pronouns in Chinese by L1-English–L2-Spanish–L3-Chinese speakers. The language background of the L3 Chinese speakers in this study is interesting as their L1 and L2 are not typologically related to Chinese. However, Spanish is similar to Chinese; both languages allow null subject pronouns in finite clauses, whereas English obligatorily requires overt subjects. With regards to overt subject pronouns, Spanish is different from both English and Chinese. In Spanish, the behaviour of overt subject pronouns is governed by the overt pronoun constrain but it does not operate in English and Chinese. The data was collected via a written production task and a pronoun interpretation task. As discussed previously, the Scalpel Model predicts that transfer is partial. The results of this study support these predictions. The L3 speakers transfer from L2 Spanish for null subjects and from their L1 English for overt subjects. The results show that wholesale transfer from one language is not necessarily required for L3 acquisition.

In summary, like the CEM, the Scalpel Model supports property-by-property transfer. Although it disregards some of the aspects of the TPM (wholesale transfer), both models predict non-facilitative transfer in L3 acquisition. One of the main attributions of this model is that it offers an alternative hypothesis of L3 transfer. Another recent model that predicts property-by-property transfer is the Linguistic Proximity Model which is discussed in the next section.

2.4.2 The Linguistic Proximity Model

The Linguistic Proximity Model (LPM) (Westergaard et al., 2016) is another recent L3 acquisition model which shares some of the aspects with the CEM and the

TPM. Together with the CEM, it predicts that acquisition is a cumulative process, and together with TPM, it predicts that transfer can be facilitative as well as non-facilitative. However, unlike the TPM, it argues that transfer is not wholesale and neither L1 nor L2 plays a privileged role in L3 acquisition. The LPM and the Scalpel Model share similar views about L3 acquisition. Both models argue that L1 and L2 grammars are available for L3 speakers. Like Slabakova (2016), Westergaard et al., (2016) argue that transfer occurs property-by-property and reject the typologically based transfer. In other words, transfer occurs when a linguistic property in L3 input is structurally similar to the L1 and L2. The LPM maintains that non-facilitative transfer occurs when the parser misanalyses L3 input and assume that a property is shared between the target L3 and the another previously acquired language.

Like that the Scalpel Model, the LPM being a new model, a limited number of studies has been done within its framework. Westergaard et al. (2016) tested adverb placement and subject-auxiliary inversion in English, to determine the source of transfer in a group of Norwegian-Russian bilinguals (*n*=22) learning English as their L3. Norwegian is a V2 language whereas Russian and English are not. Subject-verb inversion is allowed in English and Norwegian as in (21) and (22) but not in Russian as in (23). With respect to adverb placement, English and Russian are similar, with preverbal adverbials (24 and 25). However, Norwegian has postverbal adverbials as in (26).

(21) What will the little girl read?

(22) Hva vil den lille jenta lese ?
what will the little girl read
'What will the little girl read?'

(23) *Čto eta malen' kajadevočka budet čitat'?
What the little girl will read
'What will the little girl read?'

(24) Emma often eats sweets

(25) Emma casto jest konfety
Emma often eats sweets
'Emma often eats sweets.'

(26) Emma spiser ofte konfety
Emma eats often sweets
'Emma often eats sweets.'

The data was collected via a grammaticality judgment task. The results of Norwegian Russian bilinguals were compared to two groups: a group of L1-Russian–L2-English speakers (*n*=31) and a group of L1-Norwegian–L2-English speakers (*n*=46). The results showed that the L1 Russian speakers and Norwegian-Russian bilinguals were target-like on adverb placement. Both groups experienced facilitative transfer from Russian. However, L1-Norwegian–L2-English speakers were not targetlike on adverb placement. L1 Norwegian speakers were non-native-like on adverb placement. This suggests non-facilitative transfer from Norwegian. L1 Norwegian speakers and Norwegian-Russian bilinguals performed better than the L1 Russian speakers on subject-auxiliary inversion. According to the authors, the results for adverb placement show that typological proximity between Norwegian and English was overridden by facilitative transfer from Russian. The results show that for the bilingual group experience transfer from both Russian and Norwegian and for each property transfer is based on structural similarity between the target L3 English and previously acquired Russian and Norwegian. Therefore, the authors argue that their findings can be better explained by the LPM than other models. Moreover, this study provides evidence that both languages (L1 and L2) are available for transfer into an L3 if the structural similarities are met at a property level.

2.5 Overview of L3 Models

The Absolute L1 Transfer Model and the L2 Status Factor predict that initial transfer is wholesale. As noted previously, the Absolute L1 Transfer claims that the L1

is, by default, the privileged source of transfer in L3 acquisition. Further, it assumes that the L1 serves as a filter blocking access to L2 grammars. Turning to the L2 Status Factor, it claims that the initial state of the L3 morphosyntax is the L2 grammar. As noted previously, Falk and Bardel (2011) claim that the psychological and cognitive prominence of the L2 grammar allows it to take on a significantly stronger role than the L1 in the early stages of L3 morphosyntactic development. Recent studies have shown the L2 proficiency is a key factor in L3 acquisition (Leung 2005b). Slabakova (2016) and Leung (2005b) argue that more proficient L2 learners are more likely to transfer properties from their L2. Jaensch (2009a) and Leung (2002b) made another important observation. They state that L3 learners with a higher L2 proficiency level are likely to outperform those with lower L2 proficiency even when the target L3 property is not present in the L2.

Considering the CEM and the TPM together, unlike the L2 Status Factor, the CEM maintains that transfer in L3 acquisition can come from any previous language. The TPM maintains that transfer always occurs whereas the CEM claims that transfer always occurs if one of the previously acquired languages has the target property. However, it is not reasonable to argue that transfer alone will always account for non-native speakers' behaviour. Other factors (familiarity with vocabulary, learning and teaching setting, degree of concentration, duration of exposure to the target language, motivation, etc) could also influence the performance of non-native speakers (Collentine & Freed, 2004).

It is worth noting that all the L3 models that we have discussed so far assume that transfer always occurs, whether wholesale or property-by-property, from L1 or From L2. The L3 models generally do not take into considering the effect of extra-linguistic factors (such as motivation, learning setting etc). This does not mean that

these models do not deny the effect of extra-linguistic factors on L3 acquisition, but they limit their explanation to the question of transfer. Interestingly, unlike other models, as mentioned previously, the Scalpel Model considers the effect of certain extra-linguistic factors.

The CEM claims experience with any prior language acquisition can facilitate subsequent language acquisition. The TPM is similar to the CEM as it predicts that both L1 and L2 are available for L3 speakers. Further, both models predict that neither the L1 nor the L2 has a privileged status in L3 acquisition. However, differently from the CEM, the TPM predicts both facilitative and non-facilitative transfer. Further, the TPM hypothesizes that transfer is constrained by perceived typological proximity, also known as psychotypology (Rothman 2015). One criticism levelled against the TPM is that it does not specify what linguistic cues learners use to identify typological proximity between languages (Amaro, Flynn, & Rothman, 2012). Rothman (2015) provides clarification to this question. He states that the parser's perception of typological similarity is based on whatever actual similarities can be assessed from limited L3 input as compared to the L1 and L2. Rothman (2013) explains that the parser uses four types of linguistic cues (lexicon, phonological structure, functional morphology and syntactic structure) to determine typological proximity between languages. As mentioned previously, I tested the CEM and the TPM in this study. Later in the thesis, I argue that if the TPM is correct, then, the L3 speakers would transfer from English whilst if the CEM is correct, the L3 speakers would transfer from Sinhala as only transfer from Sinhala will enhance L3 grammar development.

Turning to the Scalpel Model and the Linguistic Proximity Model, both these models make similar predictions about the role of previous languages in L3 grammar development. Unlike the TPM, these models claim that transfer in L3 acquisition

occurs property-by-property and claim that wholesale transfer is not beneficial for L3 grammar development. The scalpel model claims that the L1-plus-L2 combined grammars act with a scalpel-like precision to extract the enhancing or facilitative properties from L1 or L2. It also considers the factors affecting L3 grammar development beyond L1 and L2 transfer. Further, like the Scalpel Model, the LPM predicts non-facilitative transfer, which occurs when the parser misinterprets L3 input, assuming that a property is shared between the L3 and other previous languages (L1 and L2). Regarding the representation of the previous languages in the multilingual mind, according to Amaral and Roeper (2014), all linguistic properties are tagged and are available for subsequent languages. Table 3 provides a systematic comparison of the L3 models. The next section outlines previous L2 and L3 studies that are relevant to the specific research topics of this thesis, namely adverb placement and object clitics in French.

Table 3. Systematic comparison of L3 models

L3 proposals	**Different properties**			
	Transfer from L1	**Transfer from L2**	**Wholesale transfer**	**property-by-property transfer**
Absolute L1 Transfer	✓	×	✓	×
L2 Status Factor	×	✓	✓	×
Cumulative Enhancement Model	✓	✓	×	✓
Typological Primacy Model	✓	✓	✓	×
Scalpel Model	✓	✓	×	✓
Linguistic Proximity Model	✓	✓	×	✓

2.6 Previous research: Acquisition of adverb placement and object clitics in French by non-native speakers.

Within the generative framework, L3 language acquisition research on adverb placement and object clitics in French is quite scarce (Hermas, 2010, 2015). However, a few L2 acquisition studies have investigated knowledge of adverb placement and

object clitics by L1-French–L2-English speakers and L1-English –L2-French speakers.

One of the seminal studies on adverb placement was done by White (1991). She investigated knowledge of adverb placement in L2 English by native French speakers of age 11–12. Two L2 groups participated in the study. The first group received instruction on adverb placement (adverb group), and the other group was taught how to form questions (question group) in English. There were 82 participants in the adverb group, whereas in the question group, there were 52 participants. The data was collected via three tasks: an acceptability judgement task, a preference task and a manipulation task. The three tasks focused on frequency and manner adverbs in English and tested the following word orders: S-Adv-V-O, *S-V-Adv-O, Adv-S-V-O, and S-V-O-Adv as in (27 a-d). In addition to these structures, the author also tested sentences including intransitive verbs followed by PPs. Specifically, White focused on S-Adv-V-PP order and S-V-Adv-PP order as in (28 a-b). S-Adv-V-O order is grammatical in English, but it is ungrammatical in French. The adverbs are placed postverbally in French (as in 29) but not in English, which means that S-V-Adv-O order is ungrammatical in English. Therefore, White (1991) hypothesises that the French-speaking L2 English learners would accept *S-V-Adv-O order in English due to transfer from their L1 French. The word order differences in French and English related to adverb placement is also the topic of this thesis. I discuss the syntax of both S-Adv-V-O and S-V-Adv-O structures in more detail in Chapter 3. The other two structures (Adv-S-V-O and S-V-O-Adv) tested in the study are allowed in French and English. The participants were tested on different occasions: they were pretested and post-tested twice, immediately after instruction period, and again five weeks later. A follow-up study was also conducted one year after the experiment.

(27) a. Susan often plays music
b.*Susan plays often music
c. Often Susan plays music
d. Susan plays music often.

(28) a. Jane sometimes goes to the movie
b. Jane goes sometimes to the movie.

(29) Les enfants attendent toujours les vacances avec impatience.
the children wait always the holidays with impatience
'The Children impatiently wait for holidays.'

In the pre-test, the adverb group and question group accepted both grammatical and ungrammatical structures (S-Adv-V-O and *S-V-Adv-O). However, in the post-tests, there was a clear difference between the adverb group and the question group. The adverb group was more target-like than the question group on adverb placement. According to the author, the difference between the groups clearly suggests that clear explicit instructions helps L2 learner to acquire target properties in English. In the follow-up study, the adverb group, again accepted both grammatical and ungrammatical word orders in English. Based on the overall results, White (1991) argues that two structures co-exist in their grammars. The results are also compatible with a more recent proposal on second language grammar representation by Amaral and Roeper (2014). They argue that L2 interlanguage is made up both of L1 and L2 grammars.

Rogers (2009) investigated knowledge of negation, adverb placement, subject clitics and object clitics in L2 French. Though here, I focus just on the results for adverb placement and object clitics. The data was collected from seventy-five L1-English–L2-French speakers who were at different proficiency levels: beginner, low-intermediate, high-intermediate, low-advanced and high-advanced. There were fifteen participants in each group. The L2 speakers were divided into different groups considering the length of instruction in French. A proficiency test was also

administered to the participants to make sure that the groups are distinct. Ten L1 French speakers served as a control group. The data was collected via an oral production task, a comprehension task, an acceptability judgement task. In the production task, the French native speakers predominantly used S-V-Adv-X[2] order. However, unlike the native speakers, the non-native Speakers did not use S-V-Adv- X order predominantly in their production. The high-advanced group had 30% use of this structure, whereas all of the other groups' use of that structure was much lower (less than 20%). The results of the comprehension task showed that knowledge of adverb placement increases with the French proficiency of the learners. Turning to the results of the acceptability judgement task, for the beginner rejection rate of ungrammatical word order was at 45%, and with 48% of rejection rate of ungrammatical order, the low-intermediate group did not differ significantly from the beginner group. The rejection rates of ungrammatical order for low advanced and high-advanced groups were similar (41% and 40%) respectively. As the author expected, in the acceptability judgement task, the acceptance of the ungrammatical word order (S-Adv-V-X) decreases with French proficiency. The overall results suggest that except for high-advanced group, adverb placement seems to be problematic for all other groups. Therefore, it is fair to argue that the results of this study are similar to that of White (1991). The results show that the grammatical and ungrammatical structures (S- Adv-V-X and *S-V-Adv-X) were accepted equally by the lower proficiency task.

The second property investigated in this study is object clitics. In French, object pronominalization is realized preverbally as in (30) and I discuss the syntax related to object pronominalization in French, English and Sinhala in Chapter 3.

[2] Rogers (2009) explains that X stands for objects.

(30) Elle la lance
she it throws
'She throws it.'

The findings of the production task suggest that the use of preverbal object clitics was not frequent in any group. The French native speakers only used preverbal object clitics in 43% of their response. The beginners and low-intermediate group used preverbal object clitics very rarely (0.88% and 1.77% respectively). The low-advanced and high-advanced groups used preverbal object clitics less frequently than the French native speakers (35% and 29% respectively). The author also found that in the production task, the use of ungrammatical postverbal clitic was very rare by the non-native speakers (only in 4 cases). The most frequent order for the L2 speakers was S-V-O order (use of full DPs). The author also found a positive correlation between the use of object clitics and French proficiency. In the comprehension task, the author reports that the beginner and low-intermediate groups did not perform beyond the chance level on the object clitic items (44/150 and 43/150 respectively). However, the other non-native groups performed at above chance levels on object clitics. In the acceptability judgement task, the beginner group performed at the chance levels (31/60) on the preverbal clitic items. Interestingly, the beginner group rejected the postverbal clitic items (S-V-Cl) more than the object omitted items ($SV_{no}O$) (32/60-17/60). The intermediate groups also accepted the preverbal clitic items and rejected the object omitted items at chance levels. The two intermediate groups were not significantly different with regard to the acceptance of the grammatical items (S-Cl-V) and rejection of ungrammatical items ($SV_{no}O$). Similarly, the native speakers and advanced groups were not significantly different from each other on object clitics.

This study employs a proficiency test in which the participants were instructed to find whether a given word is a real French word or an invented word (Rogers, 2009,

p 171). As one of the limitations to the study, Rogers (2009) acknowledges that the French proficiency test was not fined-grained enough to discriminating the participants at the high ends.

One of the important studies investigating knowledge of object clitics in French by child second language learners was done by Grüter (2005). Six-year-old English-speaking children with L2 French took part in the study. Their results were compared with a group of monolingual francophone children and a group of children with language impairment. The data was collected via an elicited production task and a sentence-picture matching task. In the elicited production task, the researcher presented a story (containing pictures) to the participants. While narrating the story, the researcher asked questions about the pictures that the participants saw on a screen. Considering the nature of the questions, the answers with object clitics were considered the most felicitous choice compared to answers with full DPs. The sentence-picture matching task tested whether the participants were sensitive to the presence and absence of object clitics. The results show that the performance of the child second language learners was target-like in the sentence-picture matching task. However, in the elicitation production task, for the L2 children object clitic omission was the most frequent response type (53.66%) followed by full DPs (19.5%). The overall results suggest that the performance of the child L2 speakers was similar to that of the children with language impairment as the two groups had a highly significant object clitic omission compared to the monolingual francophone children. However, the author also suggests that object clitic placement errors were rare among the L2 speakers. Other studies of object clitics in L2 French by White (1996) and Paradis (2004) also confirm that object clitic omission errors are more frequent as opposed to placement errors.

Belletti and Hamann (2004) conducted a longitudinal case study on grammar development in L2 child French. They looked at the French grammar development of an Italian-speaking child (Lorenzo). The authors compared Lorenzo's data with a German-speaking child (Elisa). Lorenzo started learning French at the age of 3;4 years whereas Eliza exposed to French at the age of 2;8 years. However, by the time the data was collected Lorenzo was 3;5 years old whereas Eliza turned to 4 years. They analysed the use of functional categories. For the purpose of the present study, I focus only on the results for object clitics. The two children were audio recorded on five different occasions. With regards to the acquisition of functional categories, German 'child French show pattern that may indicate transfer from her L1 German however, the Italian child does not transfer from his L1 Italian. However, the results show that both children used object clitic similarly. Thus, they omitted object clitics at the initial stage of exposure.

Another important study which investigated the acquisition of French object clitics was done by Grüter and Crago (2011). They investigated L1 transfer effect on production and comprehension of object clitics by child L2 learners of French whose L1 is either Chinese or Spanish. Spanish has object clitics which are similar to French, but Chinese has no object clitics. The data was collected via an elicited production task and a truth-value judgment task. The findings suggest that the Spanish-speaking learners performed better than the Chinese-speaking learners in the production task. Production of preverbal clitics was statistically significantly higher in the L1 Spanish group (68.6%) in comparison to the L1 Chinese group (42.3%). They also found that the Chinese-speaker learners omitted object clitics (43.7%) significantly more frequently than the Spanish-speaking learners (2%). The two groups also produced full DPs, which was at 38%. However, in the truth-value judgment task, the Chinese-

speaking learners rejected the ungrammatical object omission in French. The Spanish-speaking learners performed at a higher accuracy than the Chinese counterparts in French. This study shows the potential role that L1 plays in the acquisition of object clitics in L2 acquisition.

Hermas (2010) investigated knowledge of adverb placement in L3 acquisition. To my knowledge, it is the only previous L3 study of adverb placement involving French. However, in this study, French is the L2. Hermas explicitly builds on White's research and draws on her design. The L3 speakers of this study are twenty Arabic native speakers whose L2 is French. They were beginners in English and their L2 French varied between post-intermediate and advanced. The objective of the study was to investigate whether Arabic plays a significant role in the L3 interlanguage. Arabic, English and French differ with respect to adverb placement. In French, frequency adverbs occur postverbally (as noted in 28) whereas, in English, they are placed between the subject and the finite verb (as given in 26-a). Therefore, S-Adv-V-O structure is licensed in English but not in French. Unlike French and English, in Arabic, both structures (S-V-Adv-O and S-Adv-V-O) are grammatical. The author predicted that the L3 speakers would experience transfer from L1 Arabic and they will use both structures interchangeably. The data was collected via an acceptability judgement task (AJT) and a preference task. Each task involves French and English versions. The French AJT included 12 grammatical targets (S-V-Adv-O) and 12 ungrammatical targets (*S-Adv-V-O). The structure of the English AJT was similar, with 12 grammatical targets (S-Adv-V-O) and 12 ungrammatical targets (*S-V-Adv-O).

The results show that in the AJTs (French and English), the L3 speakers were not target-like on ungrammatical targets. In the French AJT, their accuracy rate on the

ungrammatical targets was only 46.51%. In the English AJT, their accuracy rate further degraded to 17.5%. The findings show the L3 speakers performed better in the French preference task compared to its English counterpart. However, the results show that the adverb placement has not been acquired either in L2 French or L3 English. In the French preference task, L2 French speakers showed a preference for the target word order (S-V-Adv-O, 66.33% and *S-Adv-V-O, 11.66%) and In the English preference task, they equally accepted both structures (S-Adv-V-O, 39.16% and *S-V-Adv-O, 40%). In the acceptability judgment task, the accuracy rate for ungrammatical order was low for both French and English (46% and 17% respectively). Based on the results, Hermas (2010) argues that L1 plays a privileged role in L3 acquisition. However, Slabakova (2016) argues that in this L3 study, we can only claim that the L1 is privileged by making sure that the relevant properties are acquired in L2 French because L2 French may be influenced by the L1 Arabic, so transfer from L2 could look the same as transfer from L1.

Kong (2015) considers the interpretation of null subjects and object pronouns in matrix and embedded clauses by twenty-five adult Chinese speakers acquiring L3 French. This is the only L3 study of subject and object in French, to my knowledge. The L3 French speakers were advanced L2 English Speakers. Kong also considers another twenty-three participants of the same L1/L2 background acquiring L3 Spanish. However, in this section, I consider only the L3 French results related to object pronouns. The data was collected via an error correction task. Kong tested null object pronouns in matrix clauses as in (30), and also in embedded clauses as in (31).

(31) La voiture de Marie ne fonctionne pas. *Je vais préparer pour elle.
The car of Marie not work I will fix for her
‘Marie’s car doesn’t work’. ‘I’ll fixt it for her.’

(32) La TV de Sophie ne marche pas. *Je crois que je vais préparer pour elle
The TV of Sophie no work I think that I will repair for her.
'Sophie's TV is not working'. 'I think I'll repair it for her'.

Chinese allows both overt and null object pronouns, whereas French is a non-null object language. The results show that the L3 French speakers of French failed to detect ungrammaticality of null objects in the matrix and embedded clauses in French, under non-facilitative transfer from Chinese.

The L2 and L3 studies that we have discussed so far have contributed to enhance our understanding of L2 and L3 interlanguage grammars. White (1991) and Rogers (2009) provides informative findings regarding grammar representation in L2 interlanguage. The Hermas (2010) study is an important study that investigated knowledge of adverb placement in L3 acquisition. Hermas (2010) also tested the English and French proficiency of the participants via an oxford placement test which helps the author to report a more accurate account of the participants' profile. Hermas (2010) argues that L1 takes precedence over L2 French, which is psycho-typologically closer to English. The author draws his conclusion by looking at the acquisition of two properties related to verb movement (negation and adverb placement) in L3 acquisition. By looking at unrelated properties in L3 acquisition will help us to make firm conclusions about the role of L1 and L2 grammars in L3 acquisition. Therefore, in the present study, I decided to investigate knowledge of two properties (adverb placement and object clitics) in L3 French. Looking at the acquisition of two properties will help to understand whether the transfer comes from one language or from both previously acquired languages. The language combination in my study is similar to that of the study by Hermas (2010). Arabic is a Semitic language while French and English are Indo-European therefore, English is typologically more distant from Arabic than French is. Similarly, Sinhala does not share any typological

similarities with French and English. Although French differs from English on verb movement, the participants would perceive English holistically closer to French. As Rothman (2015) points out, the parser decides typological proximity between the target L3 and other existing languages based on lexical, phonological, morphological and syntactic cues. Considering the three languages in the present study, it seems reasonable to suppose that Sinhala-English speakers of L3 French might (unconsciously) choose English over Sinhala to be more typological close to French, especially considering lexical and syntactic cues. As shown in (32) with French equivalent in italic, English and French have more lexical overlap than French and Sinhala. Moreover, French and English are syntactically similar because they both have a fairly fixed word order, unlike Sinhala. Therefore, French, English and Sinhala language combination would help us to ascertain whether the L3 speakers would transfer from a language which they would perceive typologically close to the target L3 French or whether they would transfer from their L1 Sinhala which is structurally similar to French with regards to the two properties investigated in this study (see the next Chapter for details).

(33) a. Commence - *commencer*
b. Pork - *porc*
c. Mutton- *mouton*

In this Chapter, I have outlined six L3 models which make different predictions about the source of transfer in L3 acquisition. These models make testable predictions about the role and degree of transfer from L1, L2 and sometimes both. I have also outlined the most important studies that support the predictions of these models. The present study aims to compare L2 and L3 French with the aim of shedding light on the source of transfer in L3 development. By comparing L2 and L3 French, the present study also aims to test the prediction made by two competing models: the CEM and

TPM. When the present study was designed, the two models outlined in Section 2.4 had not been reported in L3 acquisition literature. Therefore, I considered the prediction reported by the CEM and TPM when formulating the hypotheses of the study, which are reported in Chapter 4. In Chapter 7, I evaluate the predictions of the two models (the CEM and the TPM) in relation to the findings of this study and argue that the results cannot be fully captured by the two models. However, I demonstrate that the results are compatible with two other models: the Scalpel Model and the LPM. The next chapter reports the crosslinguistic difference between English French and Sinhala with regards to verb movement and object pronominalization.

Chapter 3

Syntactic background in French, Sinhala and English

3.1 Introduction

The present study focuses on knowledge of adverb placement and object clitic pronouns in French by two non-native groups whose prior languages are L1-Sinhala–L2-English or L1-English. The aim of the chapter is threefold: Firstly, to outline the word order differences in English, French and Sinhala in relation to adverb placement and object pronominalization; secondly, to underline the syntactic differences in the three languages with regards to verb movement and object pronouns; and thirdly, to examine how syntactic theory underpins the word order differences in the three languages. Therefore, the empirical study of French word order acquisition by non-native speakers forms the heart of this thesis.

3.2 Adverb placement in English and French

Adverb placement in French and English is relatively free. Both languages allow adverbs in pre-subject position as in (33) and (34) and at the end of the VP as in (35) and (36). However, French and English show certain contrasts with respect to adverb placement. In English, adverbs may appear between the subject and the finite verb as in (37). However, English does not allow adverbs between the finite verb and the direct object as in (38), whereas in French they may, as can be seen in (39). As illustrated in (40), in French, adverbs may not intervene between the subject and the finite verb, unlike in English.

(33) Lentement il lit son roman.
Slowly he reads his novel
'Slowly he reads his novel.'

(34) Slowly, he reads his novel.

(35) Il lit son roman lentement.
he reads his novel slowly
'He reads his novel slowly.'

(36) He reads his novel slowly.

(37) Pierre often watches TV

(38) *Pierre watches often TV.

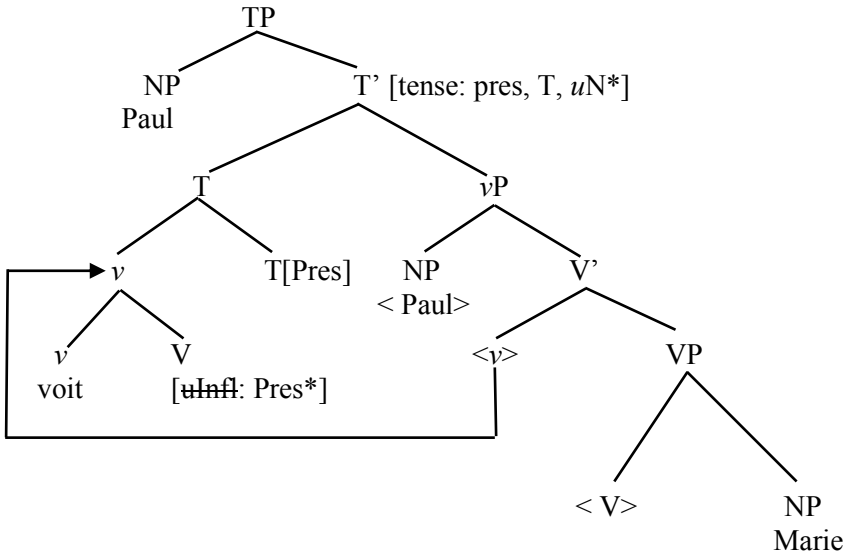
(39) Pierre regarde souvent la télé.
Pierre watches often the TV
'Pierre often watches TV.'

(40) *Pierre souvent regarde la télé.
Pierre often watches the TV
'Pierre often watches TV.'

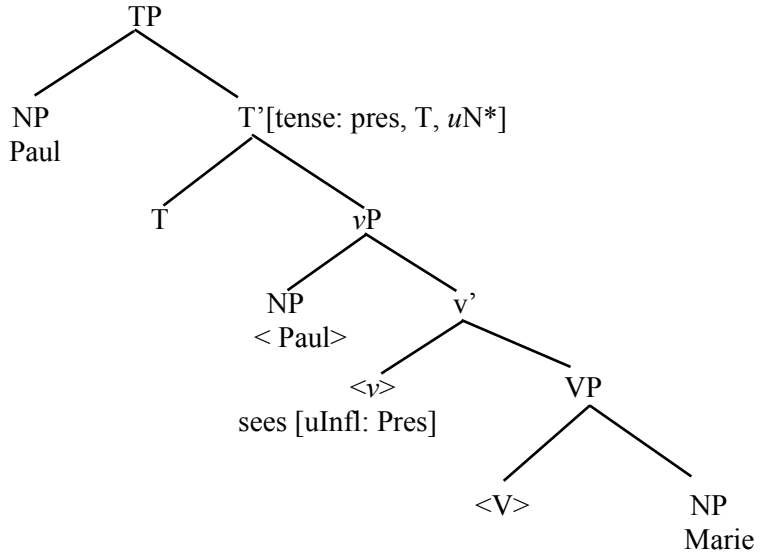
3.2.1 Verb movement in French and English

The difference between French and English with regard to adverb placement has been studied by a number of authors (Emonds, 1978; Pollock, 1989; Chomsky, 1989). For the purpose of this study, I will focus on the account by Adger (2003), who gives a detailed account of verb movement in French. Adger (2003) explains that when [*u*Infl:] on *v* is valued by T, [*u*Infl] is always strong in French. To satisfy the strong [*u*Infl] *v* moves to T as in (41). However, in English, when [*u*Infl] on *v* is valued by T, [*u*Infl] is always weak. As a result, *v* does not move to T as in (42). How does the verb movement affect the position of adverbs in French and English? In French, when v moves to T in order to check strong features of [uInfl], the finite verb ends up preceding the adverb as in (43). In English, *v* does not move to T in order to check features of [*u*Infl] and as a result, the lexical verb does not precede an adverb as in (44) (Emonds, 1978; Pollock, 1989; Chomsky, 1989; Adger, 2003).

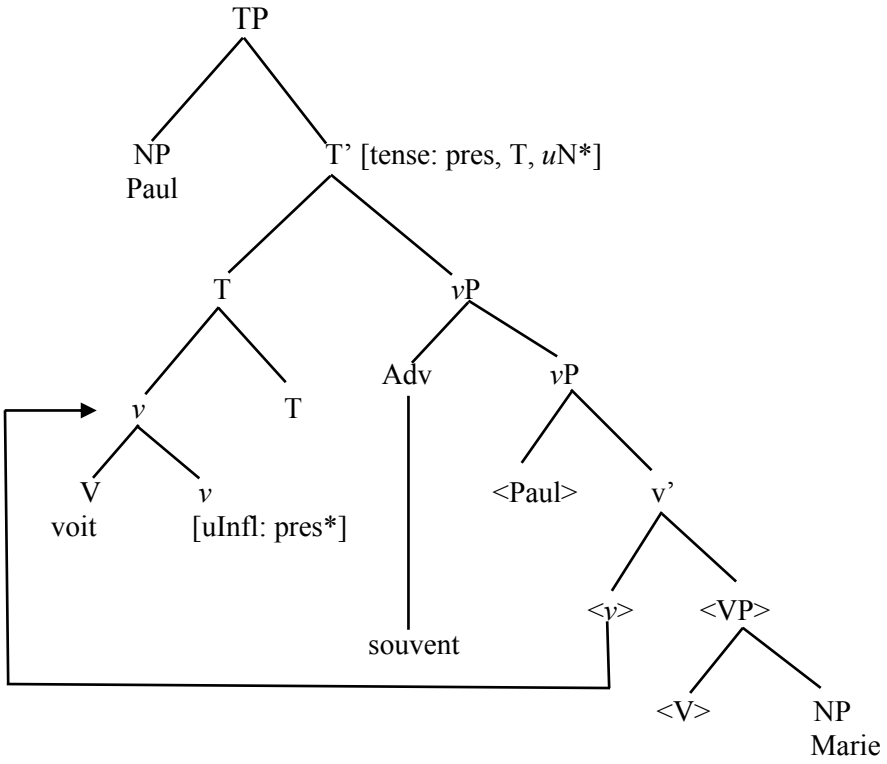
(41)


TP
NP
Paul
T' [tense: pres, T, uN*]
T
vP
v
T[Pres]
NP
< Paul>
V'
v
voit
V
[uInfl: Pres*]
<v>
VP
< V>
NP
Marie

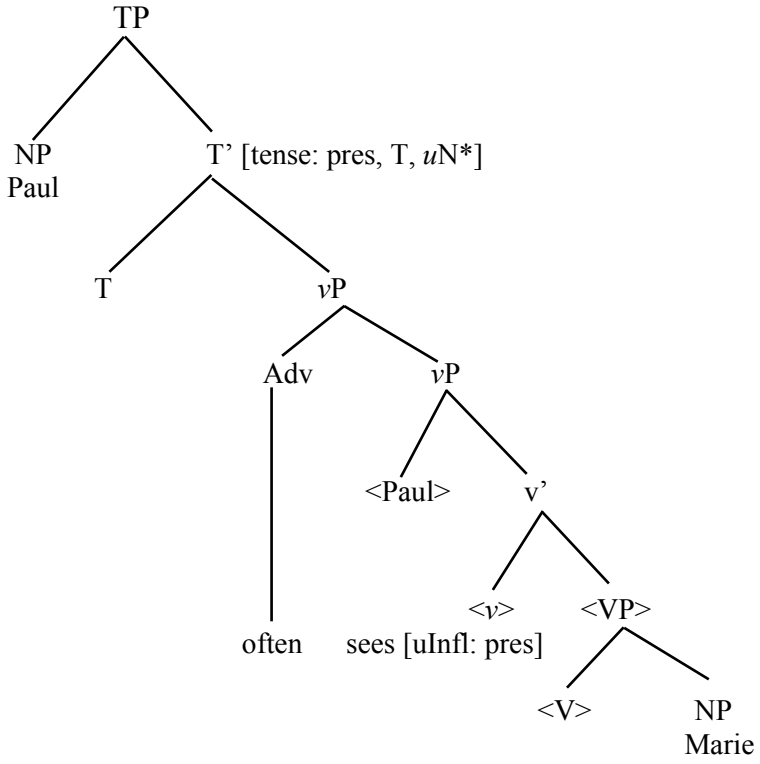
(42)


TP
NP
Paul
T'[tense: pres, T, uN*]
T
vP
NP
< Paul>
v'
<v>
sees [uInfl: Pres]
VP
<V>
NP
Marie

(43)


TP
NP
Paul
T' [tense: pres, T, uN*]
T
vP
v
T
Adv
vP
V
voit
v
[uInfl: pres*]
<Paul>
v'
<v>
<VP>
souvent
<V>
NP
Marie

(44)


TP
NP
Paul
T' [tense: pres, T, uN*]
T
vP
Adv
vP
<Paul>
v'
<v>
<VP>
often
sees [uInfl: pres]
<V>
NP
Marie

In sum, English is a language with weak inflection and lexical verbs cannot raise from the base position to the head of TP, therefore, S-V-Adv-O word order is ungrammatical in English. However, the same word order is grammatical in French as verbs obligatorily raise from V to T. The next section investigates adverb placement in Sinhala to find out whether Sinhala also shows certain contrast with respect to adverb placement.

3.3 Adverb placement in Sinhala

As mentioned previously, Sinhala is the majority language of Sri Lanka. It is the southernmost Indo-Aryan language along with closely related Divehi of the Maldive Islands (Gair, 1982). For over two millennia, it has been isolated from its sister languages of the north by its island location. However, it has been in constant contact with Dravidian languages, especially Tamil Malayalam. Despite the strong influence of Dravidian languages, Sinhala has retained its Indo-Aryan identity (Gair, 1982). The syntactic analysis in Section in 3.1 shows that the structures with adverbs present two sequences (S-V-Adv-O and S-Adv-V-O) in French and English. This section attempts to demine which sequence is possible in Sinhala. To answer this question, data given in (45)-(48) will be analysed. The data given in (45), show the canonical word (SOV) order in Sinhala. However, the data in (46) and (47) show that S-V-Adv-O and S-Adv-V-O orders are grammatical in Sinhala. One of the important features that Sinhala shares with Dravidian languages are that Sinhala has a Focus feature (Gair, 1982). There are two main strategies that Sinhala employs in focusing a constituent: (i) the lexical verb appears with the *e*-suffix as in (46) and when this rule is violated, it leads to ungrammaticality as in (48); (ii) the focus element is always placed after the finite verb (46)-(47) (the focus element is in boldface). Therefore, the

data shows that S-V-Adv-O and S-V-Adv-O structures are licensed in Sinhala focus constructions.

(45) mamə niterə potə balennawa
I often book-DEF look-PRES
'I often read the book.'

(46) mamə balenn-e **niterə** pot-ə
I look-PRES.E **often** book-DEF
'Often, I read the book.'

(47) mamə niterə balenn-e **pot-ə**
I often look- PRES.E **book**-DEF
'It is the book that I often read.'

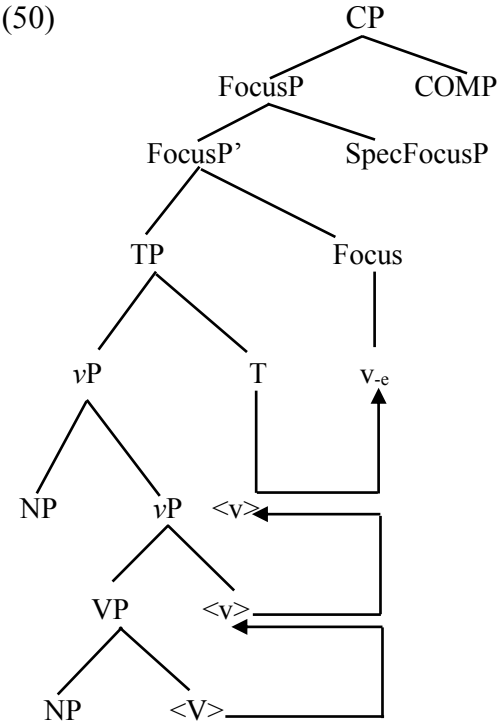
(48) *mamə balennwa niterə pot-ə
I look-EMPH often book-DEF

3.4 Syntax of focus constructions in Sinhala

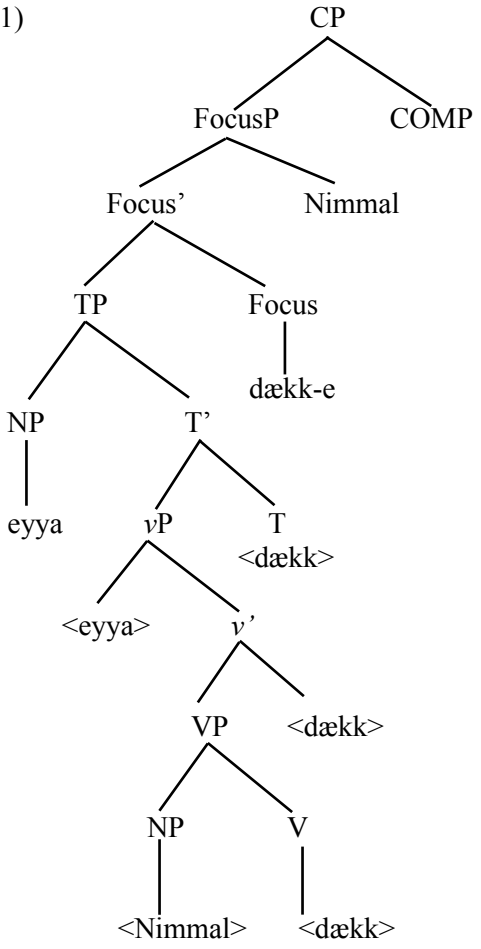
Sinhala Focus constructions have been studied by various authors (Gair, 1970; Fernando, 1973; Abrew, 1980; Kariyakarawana, 1998; Sumangala, 1988; Henadeerage, 2002). For the purpose of this study, the account of Slade (2011) on Sinhala focus constructions will be considered. Slade (2011) argues that the *e*-suffix of focussing verbs is an affix which is generated in the head of FocusP. The main verb first raises from V to I and then raises from I to the head of FocusP where it picks up the *e*-suffix as in (50). According to Slade, a focus contruction like (49) has the structure illustrated in (51). The focus element bears a valued iFocus[+] feature and an unvalued feature uExist[ ]. The morpheme -e, residing in the head of FocusP, bears an unvalued uFocus[ ] feature, valued iExist[+] feature and an additional Edge feature (which triggers overt movement of the focus element to SpecFocusP). If the head of FocusP bears an Edge feature, the focus element moves overtly to SpecfocusP where it satisfies the features [iFocus[+] and uExist[] and appears to the right of the e-marked verb as in (51) (Slade, 2011, p. 51).

(49) eyaa dækk-e **Nimal**
he see- PRES.E Nimal
'It was Nimal whom he saw

(50)



(51)

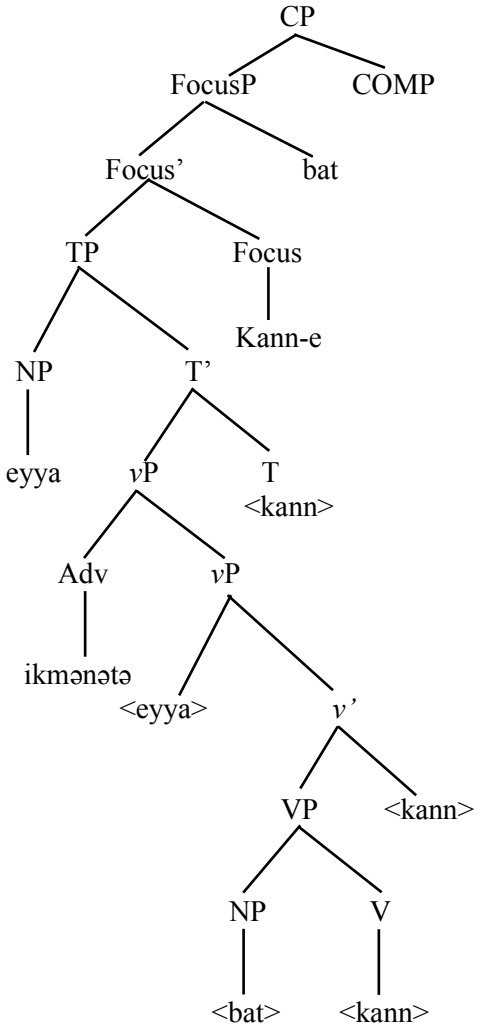


The next important question to consider is whether the proposal of Slade (2011) can accommodate S-Adv-V-O and S-V-Adv-O structures that the present study intends to examine. Following the account of Slade (2011), I suggest that the sentences in (52) and (53) would have the structures given in (54) and (55) respectively. In (54), the focus element '*bat*' is moved overtly to SpecfocusP (appearing, on the surface, to the right of the-*e* marked verb). In (55), rice '*bat*', scrambles to the right of the focused element '*ikmənətə*' in accordance with the scrambling nature of Sinhala. However, the object scrambling is not obligatory in (55) as it may also appear between the subject and the finite verb.

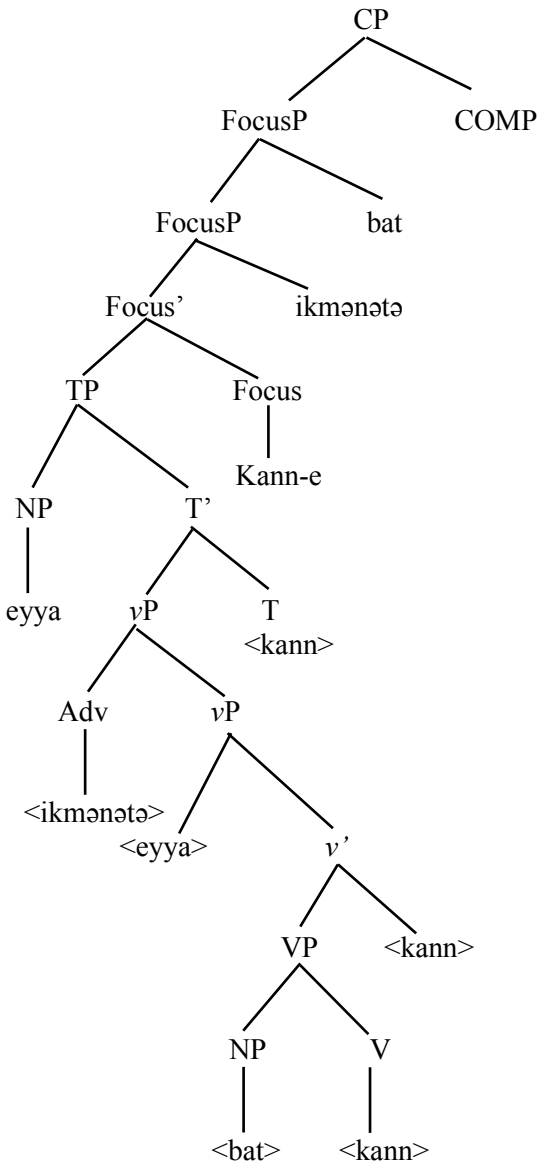
(52) eyaa ikmənətə kann-e **bat** (S-Adv-V-O)
he quickly eat- PRES.E **rice**
'It is rice that he eats quickly.'

(53) eyaa kann-e **ikmənətə** bat (S-V-Adv-O)
he eat- PRES.E **quickly** rice
'Quickly, he eats rice'

(54)



(55)


CP
FocusP
COMP
FocusP
bat
Focus'
ikmənətə
TP
Focus
Kann-e
NP
T'
eyya
vP
T
<kann>
Adv
vP
<ikmənətə>
<eyya>
v'
VP
<kann>
NP
V
<bat>
<kann>

3.5 The crosslinguistic differences between French, English and Sinhala with respect to adverb placement

As outlined in this chapter, inflection has a weak V-feature in English and the finite verb remains within the VP. Failure to raise results in ungrammatical S-V-Adv-O order in English. However, in French, when [*u*Infl:] on *v* is valued by T, [*u*Infl] is always strong. To satisfy the strong [*u*Infl] *v* moves to T. Finite verbs end up preceding the adverb when v moves to T. V to T movement prevents S-Adv-V-O order and permits S-V-Adv-O order in French. In Sinhala focus constructions, lexical verbs raise from V to I and then to the head of FocusP. Unlike in French, in Sinhala, verb movement is triggered by the suffix-e residing in the head of FocusP. Moreover, as illustrated in (22) and (23), Sinhala focus constructions can accommodate S-V-Adv-O and S-Adv-V-O structures. Table 4 summarizes the word order in relation to adverb placement in French, English and Sinhala.

Table 4. Word order in French, English and Sinhala (adverb placement)

Word order	French	English	Sinhala
S-Adv-V-O	×	✓	✓
S-V-Adv-O	✓	×	✓

3.6 Object pronominalization in French, English and Sinhala

The present study also focuses on knowledge of object clitic pronouns in French by non-native speakers whose prior languages are L1-Sinhala–L2-English or L1-English. Therefore, it is important to understand the crosslinguistic differences in English, French and Sinhala with respect to object pronominalization.

3.6.1 Syntax of object pronominalization in French, English and Sinhala

When an argument denotes a referent that is salient in the discourse, either through previous mention or visual presence, it is typically expressed as a pronoun

(Grüter & Crago, 2011). As illustrated in (56) the referential pronoun is expressed overtly in English and overtly expresses referential object pronouns are obligatory in English (as illustrated in (57)).

(56) Speaker A: Do you read the newspaper?
Speaker B: Yes, I read it.

(57) Speaker A: Do you read the newspaper?
Speaker B: *Yes, I read ø.

In French, object pronominalization is realized through a clitic or a weak pronoun (Kayne (1975). Closer inspection of the clitic construction given in (58-b), allows us to comprehend that in French clitics precede inflected verbs similar to other Romance languages. As a result, the canonical post-verbal argument position remains phonetically empty (Kayne, 1975; Sportiche,1992). Sportiche (1992) argues that in clitics construction such as (58-b), the post-verbal argument position is filled by *pro* and *pro* must be licensed by an overt preverbal clitic. The absence of an overt clitic leads to ungrammaticality as in (58-c).

(58) a. Speaker A: Est-ce que tu lis le journal?
Q you read the newspaper
'Do you read the newspaper?'

b. Speaker B: Oui, je le lis (pro).
yes, I it read
'Yes, I read it.'

c. Speaker B: *Oui, je lis (pro).
yes, I read
'Yes, I read.'

In some languages, pronominalization can be realized through the omission of the relevant argument. In these languages, referential object pronoun can be omitted as shown with examples from Chinese, which allow both overt and null referential pronouns. The examples (59-b) and (59-c) show this phenomenon.

(59) a. Speaker a: Zhangsan kanjian Lisi le ma?
Zhangsan see.PST.3.SG Lisi le Q
'Did Zhangsan see Lisi?'

b. Speaker b: ta kanjian ta le.
he see.PST.3.SG him le
'He saw him.'

c. Speaker c: ta kanjian le.
he see.PST.3.SG le
'He saw.' (Huang, 1984a, p. 533)

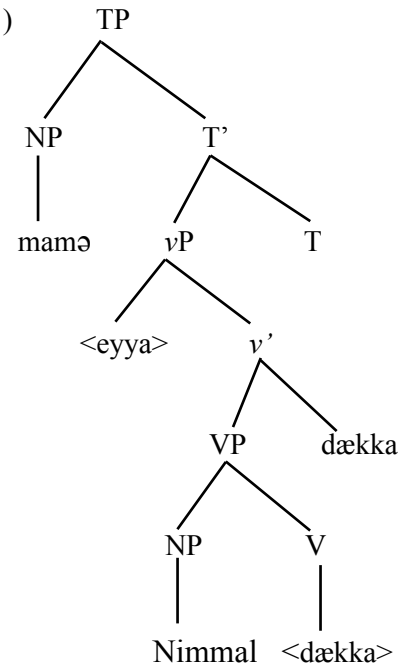
The same phenomenon can be observed in Sinhala. Like Chinese, Sinhala allows both overt and null referential pronouns as demonstrated in (60-b) and (60-c) respectively. The canonical word order of Sinhala being SOV, it has a head-final phrase structure in which complements precede the head. As we noted previously, in Sinhala focus constructions, lexical verbs raise from V to I and then to the head of FocusP. However, in the absence of the suffix-*e,* V-to-T movement is not triggered. Therefore, sentence in (60-b) would have the structure given in (61).

(60) a. Speaker A: oyya Mala dækk-a də?
you Mala see-PST.1.SG Q
'Did you see Mala?'

b. Speaker B: mamə eyya dækk-a.
I her see- PST.1.SG
'I saw her.'

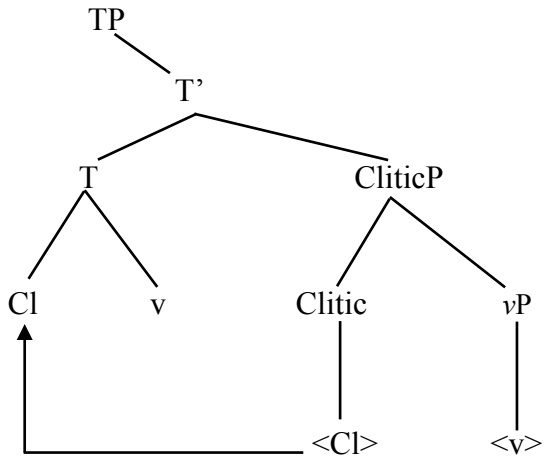
c. Speaker B: mamə dækk-a.
I see-PST.1.SG
'I saw.'

(61)



Object clitic constructions in French have been the topic of a number of studies (Borer 1983; Kayne 1975; Rowlett 2007; Sportische 1996). However, for the purpose of the present study, I focus on the account proposed by Rowlett (2007). Rowlett (2007: 91) argues that the presence of clitics can be taken as evidence of verb raising. He explains that clitics are generated under the head of CliticP. In order to check inflectional features, the verb raises over the clitic from V to T whereupon the clitic attaches to the verb as illustrated in (62).

(62)



3.7 The crosslinguistic differences between French, English and Sinhala with respect to object pronominalization

The cross-linguistic differences between the three languages can be summarised as follows: first, in contrast to English, both in French and Sinhala, object pronominalization is expressed preverbally. Second, neither French nor English allow referential null objects. However, in Sinhala, a referential object pronoun can be overt or null (Table 5)

Table 5. Word order in French, English and Sinhala (object pronominalization)

	French	**English**	**Sinhala**
Preverbal object pronouns/ clitics	✓	×	✓
Null object pronouns	×	×	✓
Overt object pronouns	×	✓	✓

3.8 Conclusion

In this chapter, we have seen that differences in surface word order between French, English and Sinhala can be accounted for different verbal positions. In French, the finite verb raises whereas in English finite verbs do not. Similar to French, in Sinhala, the finite verb raises from V to T. The verb movement in French is a result of the strong [*u*Infl:] feature whereas in Sinhala, the verb movement is triggered by the suffix-*e* residing in the head of FocusP. Further, in both Sinhala and French, verb movement permits S-V-Adv-O order. This chapter has also outlined the crosslinguistic differences in French, English and Sinhala with respect to object pronominalization. In English, object pronouns are expressed overtly whereas, in French and Sinhala, object pronominalization is expressed preverbally. The research questions and hypotheses detailed in the following chapter are formulated after carefully considering the syntactic differences discussed in this chapter.

Chapter 4

Research Questions and Hypotheses

4.1 Introduction

To determine the source of transfer in L3 acquisition, the present study compares knowledge of adverb placement and object clitics in French by L1-Sinhala–L2-English–L3-French speakers and L1-English–L2-French speakers. As we noted in Chapter 3, I explained the adverb placement and object clitics in French in relation to verb movement. Therefore, it is the verb movement that I tested in the present study. However, in the thesis, I refer to adverb placement because the position of the adverb helps us to understand where the verb is. Some authors who have investigated the acquisition of the verb movement by L2 French or L2 English speakers have also used the term "adverb placement" to explain learners' behaviour (White, 1991; Rogers, 2009). Similarly, I have used this term to refer to the L2 and L3 French learners' behaviour.

To understand the source of transfer in L3 acquisition of French, the present thesis tests the predictions made by two competing models: the Cumulative Enhancement Model (CEM, Flynn, Foley & Vinnitskaya, 2004) and the Typological Primacy Model (TPM, Rothman 2010, 2011). Moreover, the present study additionally tests knowledge of adverb placement and object pronouns in English by L1-Sinhala–L2 English speakers. This chapter is organized as follows. It First presents the research questions framing the present study. Secondly, it outlines the different hypotheses that I have formulated in relation to L3 acquisition of French adverbs and object clitics. Finally, the research question and hypotheses related to L2 English are considered.

4.2 Research questions on L2 and L3 French

Three overarching research questions frame the present study. The first two (in 63 and 64) are considered in this section.

(63) Research Question 1:

What are the characteristics of adverb placement and object pronominalization in L3 French by L1-Sinhala–L2 English speakers compared with L2 French by L1 English speakers?

(64) Research Question 2:

To what extent can either the CEM or the TPM account for L3 French characteristics?

In order to address Research Question 1, the present thesis tests knowledge of adverb placement and object clitics in L2 and L3 French via three experimental tasks, which are reported in Chapter 5. To address Research Question 2, the results of the experiment are considered in relation to the predictions of the CEM and the TPM. Six hypotheses were formulated based on Research Questions 1 and 2. The next section details these hypotheses in relation to the two structures investigated (adverb placement and object clitics) in the present study.

4.3 Hypotheses on L2 and L3 French

The hypotheses on L3 French are framed in relation to the TPM and the CEM. Therefore, let us recall the predictions made from both the CEM and the TPM about the source of transfer in L3 acquisition. The CEM proposes that any previously acquired syntactic structures, both from the learner's L1 and L2 are available in L3 acquisition. It predicts that prior language knowledge can enhance subsequent language acquisition or remain neutral. In other words, it does not predict non-facilitative transfer from either the L1 or the L2. The TPM claims that initial state transfer occurs selectively, depending on psycho-typological proximity between the

target L3 and prior languages (Rothman, 2011, p. 211). Unlike the CEM, the TPM predicts both facilitative and non-facilitative transfer. The following hypotheses test the predictions made by the two models. The next section considers the hypotheses on L3 adverb placement.

4.3.1 Hypotheses on adverb placement

4.3.1.1 Hypothesis 1: L3 French adverb placement under the CEM

As detailed in Chapter 3, Sinhala allows S-V-Adv-O structure in focus constructions (as in 65). Therefore, if the CEM is correct, then the L1-Sinhala–L2 English–L3 French speakers will experience facilitative transfer from Sinhala with regard to adverb placement in French. For the L1 English–L2 French speakers, S-V-Adv-O structure is not available in their L1 English. Therefore, the L3 French speakers will be more target-like than the L2 French speakers on adverb placement due to facilitation from Sinhala.

Let us now turn to a much narrower prediction. As noted in Chapter 3, the focus element is always placed after the finite verb with the *e*-suffix. Recalling the examples in Chapter 3, repeated here as (65) and (66), allows us to understand that the structures that the parser uses in Sinhala depend on the focus element of the sentence. As a result of word order effects related to focus constructions, when *often* (time adverbial) is in focus, S-V-Adv-O structure is required (as in 65) whereas S-Adv-V-O structure is used as the focus shifts to *book* (as in 66). Therefore, if the CEM is correct, then the L3 French speakers will use the target-like adverb placement in a context where they have to focus on time adverbials as in (67).

(65) mamə balenn-e **niterə** pot-ə
I look-EMPH often book-DEF
'Often, I read the book.'

(66) mamə niterə balenn-e **pot-ə**
I often look-EMPH book-DEF
'It is the book that I often read.'

(67) Question : Quand est-ce que Simon fait ses devoirs ?
When is-it that Simon does his homework
'When does Simon do his homework?'

Answer: Il fait toujours ses devoirs le matin.
He does always his homework the morning
'He always does his homework in the morning.'

4.3.1.2 Hypothesis 2: L3 French adverb placement under non-facilitative transfer from Sinhala

In Sinhala, as illustrated in (66), S-Adv-V-O order is required in a context where the object of the sentence is in focus. Therefore, under an L3 acquisition model that posits non-facilitative transfer, if the L3 French speakers transfer from L1 Sinhala, they will be non-target-like in a context where the direct object is in focus as in (68).

(68) Question: De quel instrument de musique est-ce que Simon joue ?
Of What instrument of music is-it that Simon plays
'Which musical instrument does Simon paly?'

Answer: *Il fréquemment joue de la guitare à l' école.
He frequently plays of the guitar at the school.
'He frequently plays the guitar at school.'

4.3.1.3 Hypothesis 3: L3 French adverb placement under the TPM

If the TPM is correct, then the L3 group will transfer from English which they will perceive as much closer to French than to Sinhala. If the L3 French speakers transfer from English, they would assume that *S-Adv-V-O structure is grammatical in French and as a result, they will be non-target-like in adverb placement in French. Moreover, their results in adverb placement will be similar to the L2 French speakers.

4.3.2 Hypotheses on object clitics

4.3.2.1 Hypothesis 4: L3 use of object clitics under the CEM

Example (60) in Chapter 3, repeated here as (69), recall us that Sinhala allows both overt and null referential pronouns. Moreover, similar to French, object pronominalization is realized preverbally in Sinhala. Therefore, according to the CEM, the L3 French speakers will be more target-like than the L2 English speakers on preverbal clitics as in (70) due to facilitation from Sinhala. The L3 French speakers will also be target-like on ungrammatical object omission as in (71) due to facilitative transfer from L2 English.

(69) Question: oyya Mala dækk-a də?
You Mala see-PST Q
'Did you see Mala?'

Answer A: mamə eyya dækk-a.
I her see-PST
'I saw her.'

Answer B: mamə dækk-a.
I see-PST
'I saw.'

(70) Question : Est-ce que tu vois tes amis ?
is-it that you see your friends
'Do you see your friends?'

Answer : Oui, je les vois souvent.
Yes I them see often.
'Yes, I see them often.'

(71) Question : as in (6).

Answer : *Oui, je vois souvent.
'yes I see often'

4.3.2.2 Hypothesis 5: L3 use of object clitics under non-facilitative transfer from Sinhala

As noted in (69), Sinhala allows null referential pronouns. Therefore, if the L3 French speakers experience non-facilitative transfer from Sinhala, they will accept ungrammatical object clitic omission as in (71).

4.3.2.3 Hypothesis 6: L3 use of object clitics under the TPM

If the TPM is correct, both the L3 French speakers and the L2 French speakers will have degraded accuracy and performance on object clitics, due to non-facilitative transfer from English on preverbal clitic placement. However, both groups will have a strong rejection of ungrammatical object clitic omission due to facilitative transfer from English.

4.4 Research question on L2 English

As noted previously, the present study tests three research questions. The third research question pertains to L2 English by L1-Sinhala speakers.

(72) **Research Question 3:**

To what extent is the acquisition of adverb placement and object pronominalization of L2 English speakers is influenced by their L1 Sinhala?

Research Question 3 is tested using two experimental tasks to be detailed in the next chapter.

4.5 Hypotheses on L2 English

In the present study, it is also essential to test knowledge of adverb placement and object pronouns in L2 English by the L1-Sinhala–L2 English speakers to determine whether both the properties are established in their L2 English as the nature of any transfer from L2 to L3 will depend on the nature of the relevant knowledge in

the L2. I first consider the hypotheses on L2 English adverb placement before turning to L2 English object pronouns.

4.5.1 Hypotheses on L2 English adverb placement

The present thesis tests two hypotheses related to L2 English adverb placement. They are detailed in the following sections.

4.5.1.1 Hypothesis 7: L2 English adverb placement under facilitative transfer from Sinhala

If there is L1 transfer into L2 English, the L1-Sinhala–L2-English speakers will use target-like adverb placement in a context where they have to focus on the object pronoun as in (73).

(73) Question: Which musical instrument does Simon paly?
Answer: He frequently plays the guitar at school.

4.5.1.2 Hypothesis 8: L2 English adverb placement under non-facilitative transfer from Sinhala

In a context where the L1-Sinhala–L2-English speakers have to focus on the time adverbial as in (74), their adverb placement will be non-target-like due to non-facilitative transfer from Sinhala. As exemplified in (74), the L2 English speakers would use postverbal adverbials.

(74) Question: When does Simon do his homework?
Answer: He does always his homework in the morning.

4.5.2 Hypotheses on L2 English object pronouns

4.5.2.1 Hypothesis 9: L2 use of object pronouns under facilitative transfer from Sinhala

As detailed in Chapter 3, Sinhala accepts both overt and null object pronouns. Therefore, the L1-Sinhala–L2-English speakers will be target-like on overt object pronoun as in (75).

(75) Question: Do you see your friends?
Answer: Yes, I often see them

4.5.2.2 Hypothesis 10: L2 use of object pronouns under non-facilitative transfer from Sinhala

However, they will also be non-target-like on ungrammatical object pronoun omission under non-facilitative transfer from Sinhala as in (76).

(76) Question: Do you see your friends?
Answer: *Yes, I often see.

4.6 Conclusion

This chapter has presented the research questions and hypotheses that the present thesis endeavours to test with the aim of understanding the source of transfer in L1 Sinhala–L2 English–L3 French interlanguage and L1 Sinhala–L2 English interlanguage. I have formulated the hypotheses in order to test two influential L3 models (the CEM and the TPM) which provide non-congruent predictions about the source of transfer in L3 acquisition. The next chapter outlines the experimental research design used in the present study to test the hypotheses detailed in this chapter.

Chapter 5

Methodology

5.1 Introduction

This chapter outlines the methodology used in this study to empirically examine knowledge of adverb placement and object clitics in L2 and L3 French acquisition. The chapter is organized as follows: it first introduces the participants. Secondly, it outlines the pre-tasks that the participants were asked to complete prior to the experiment. Thirdly, it details the experimental tasks along with their rationale.

5.2 Participants

Ninety-two participants took part in the study. There were two experimental groups and two control groups. Two experimental groups (hereafter non-native speakers) included thirty L3 French speakers (female: 29; age mode: 21; range: 20-24) and twenty-eight L2 French speakers (female: 20; age mode: 18; range: 18-54) whose prior languages were L1-Sinhala–L2-English (hereafter L3 speakers) or L1-English (hereafter L2 speakers). Two native control groups included seventeen L1-French speakers (female: 12; age mode: 20; range: 20-24) and seventeen L1-English speakers (female:15; age mode: 19; range:17-28). Two control groups and the L2 speakers were recruited from the University of York, UK whereas the L3 speakers were undergraduate students from the University of Kelaniya, Sri Lanka. All non-native speakers were enrolled in French classes as part of a French language degree, except for two among the L2 speakers who were enrolled in a University of York French

class open to the general public. The L1 French speakers were visiting students from France, enrolled in undergraduate degree programmes at the University of York.

5.3 Language questionnaire and proficiency test measures

Considering the long nature of the experiment, a short language background questionnaire was administered to all the participants (see Appendix 1). The questionnaire consisted of three sections. The first section asks for biographical information, whereas the second section elicits linguistic information. The results are summarized in Table 6. In the third section, the non-native speakers were asked to self-assess their proficiency in French. However, the self-assessment results are not reported due to the difficulty of developing a means of quantitatively interpreting such, by-definition, subjective data. For this reason, the self-assessment data was not used in checking whether the two groups have comparable levels of French proficiency, and instead the proficiency task results alone (Table 6) were used for this purpose. For completeness the self-assessment results are given in Appendix 2. The non-native speakers confirmed either English or Sinhala as their first language. The L2 speakers have been learning French longer time than the L3 speakers. The L1 French control group reported French as their native language, while the L1 English control group reported English as their native language.

Table 6. Summary of participants background questionnaire

Group	**Age**		**Gender**		**Years of formal instruction in French mean (SD)**
	Mode	Range	Male	Female	
L3 Speakers	21	20-25	01	29	3.94(0.26)
L2 Speakers	18	18-54	08	20	6.71(0.59)
L1 French speakers	20	20-24	05	12	n/a
L1 English speakers	19	17-28	02	15	n/a

As mentioned earlier, the non-native speakers completed a validated cloze test in French, developed by Tremblay & Garrison (2010) (see Appendix 3). The authors report that the main purpose of creating the cloze test was to create a "valid, reliable and practical tool which helps researchers to discriminate between L2 French learners from a wide range of proficiency levels'' (p. 84). The cloze test had been validated by recruiting French learners from the University of Illinois. The test involves filling forty-five missing words in a text (see Appendix 3). For the base text, the authors selected a non-academic article selected from *le Monde*. The missing words included 23 content words (nouns, adjective, verbs, etc.) and 22 function words (determiners, prepositions, pronouns, etc.). The independent samples *t*-test showed that the L2 speakers and L3 speakers are not significantly different with respect to the French language proficiency ($t(56)=1.59$, p =375). The results confirm that the non-native speakers are intermediate speakers of French. Tremblay and Garrison (2010) do not provide a mapping of scores to the Common European Framework of Reference for Languages (CERF). However, they specify the scores on their test to each proficiency level.

The L3 group also completed a Cambridge English proficiency test (University Cambridge Local Examinations Syndicate, 2001) (see Appendix 4). The English proficiency test assessed the participants in reading, comprehension and grammar through sixty multiple-choice questions. The L3 speakers were all educated at mainstream Sri Lankan schools where English is introduced as a second language. Due to time constraint, six of the thirty L3 speakers were unable to complete the English proficiency test. The results are reported in Table 7. The Cambridge English proficiency test provides a mapping from this test to the Common European Framework of Reference for Languages (CEFR; Council of Europe, 2001). The results

indicate that the L3 speakers have upper-intermediate proficiency in English. Six participants did not complete the English proficiency test so their experimental data was ultimately excluded from analysis.

Table 7. Proficiency test scores

	Minimum	**Maximum**	**Test mean score (SD)**
French proficiency scores (out of 45)			
L2 Speakers (*n=28*)	10	23	16.14 (4.25)
L3 Speakers (*n=30*)	08	22	14.36 (3.84)
English proficiency scores (out of 60)			
L3 Speakers (*n=24*)	32	42	39.79 (4.25)

The French proficiency test data provide evidence of comparability of the L3 and L2 groups in terms of their general French level. However, there are clearly many differences between the groups. First, each group's French study has taken place in different settings, in different countries, which means there will no doubt be differences relating to teaching styles and broader cultural differences in education. The scope and focus of the present study do not allow for effects of all the potential differences to be formally studied and taken into account. Therefore, while acknowledging that these differences exist, I follow the practice of many other studies on L3 grammar acquisition and adopt the measure of French proficiency as the only formal comparison of the two groups.

5.4 Experimental materials

The experiment included both French and English test instruments. The data on non-native French was collected by means of three test instruments: an audio acceptability judgement task (audio AJT), a written acceptability judgement task (written AJT) and a production task. Both audio and written AJTs are included because it may allow measure of transfer that could potentially only occur in a spoken

context, as explained later in this chapter. The participants started the experiment with the audio AJT, which was followed respectively by the written AJT and the production task (see Section 5.7 for further details). The English test instruments included two tasks: an audio AJT and a production task.

5.5 Judgement and production data

Sprouse (2011) states that AJTs are used in a wide variety of linguistic domains like generative linguistic research, language acquisition research, psycholinguistic research and also classroom-based research. The AJTs can be used for a range of purposes, including to screen participants, assess language proficiency and also to determine knowledge types: implicit and explicit. Ionin and Zyzik (2014) state that one of mains concern about AJTs is that they are not natural. In other words, the tokens tested in AJTs do not reflect real-world use of the target language. According to the authors, another concern about AJTs is that they may only tap into learners' explicit knowledge. The authors also explain that testing implicit knowledge is more important than testing explicit knowledge as explicit knowledge is more prone to decay. However, some researchers state that timed AJTs and audio AJTs could be used to test implicit grammar knowledge (Ellis, 2005; Murphy, 1997). Further, judgement data is important as they allow us to understand what structures are allowed and disallowed by native and non-native speakers and production data cannot give that information (Marsden et al., 2018; Ionin & Zyzik, 2014; Schütze & Sprouse, 2014). Most importantly, AJTs can be used to test target syntactic structures that are difficult to elicit in production (Loewen, 2009). AJTs can be used to test syntactic structures that are rare in spontaneous speech (Loewen, 2009). With regard to the present study, judgement tasks are used to test the influence of word order effects related to Sinhala focus construction, on L3 French acquisition. The Sinhala word order effects are a

feature of spoken Sinhala so it was decided to include both a written AJT and an audio AJT as the audio AJT may help to measure transfer of a property of spoken language (see Section 5.5.1.1). In contrast to written AJTs, audio AJTs are rarely used by researchers (Indrarathne, Ratajczak & Kormos, 2018). Since written AJTs are the more standard form, and since the potential transfer of Sinhala focus construction effects was only one element of all of the potential transfer effects under investigation, I decided to use both a written and audio AJT in order to maximise the possibility of obtaining useful data. Turning to production data, Schachter, Tyson and Diffley (1976) also argue in favour of production data. They state that production data helps us to understand what learners do not know and their sensitivity to different syntactic structures. Selinker (1974) and Myles (2005) also stress the importance of production data. Selinker (1974) states that researchers need to consider production data as they come from observable and real-life situations. Myles (2005) argues that the language produced by L2 learners, despite processing and parsing difficulties, shows the most directly the state of learners' interlanguage. There are two types of production data: oral and written (Indrarathne, Ratajczak & Kormos, 2018). In the present study, I focus on oral production data as elicited oral data allows for more spontaneous data than written. In production tasks, the participants have less opportunity to reflect on learnt linguistic knowledge. Another reason for including a production task was to find out whether the L3 speakers' behaviour with regards to object clitics and object pronouns would differ in different task types. In spoken Sinhala, object pronouns are omitted more freely than in written Sinhala. Therefore, if their behaviour with regards to object clitics and object pronouns differs between the production task and the AJTs , then this could shed further light on the role of transfer from Sinhala in the L3 French. However, adverb placement does not differ in spoken and written Sinhala.

5.5.1 Acceptability judgement tasks

The AJTs attempt to compare knowledge of two structures in L3 and L2 French in order to shed light on the source of transfer in L3 acquisition. The AJTs were built in PsychoPy.v3.0 (Pierce, 2007). Two AJTs employed the same tokens. It was decided to use the same tokens in order to determine whether the judgements of the L3 speakers change in the audio and written versions of the AJT. Further, it would be difficult to determine whether their judgements would change in the Audio and Written AJTs, by asking them to judge two different sets of tokens. However, asking the participants to judge the same tokens twice could lead to priming effects. The order of tokens in the audio AJT was reversed in the written AJT in order to minimize possible priming effects.

The audio AJT involved listening to audio recorded two-person short dialogues in French whereas, in the written AJT, the participants read the dialogues. The dialogues consisted of questions and answers. The first person in the dialogue poses questions and the second person provides answers. In the written AJT, the dialogues were presented on a screen. The questions in the dialogues were presented in black on a grey screen as in Figure 1. The answers were presented in red on a grey screen as in Figure 2. In the two AJTs, the participants judged the answers given by the second person in the dialogues. The judgments of the participants were measured on a seven-point Likert scale of 0 to 6 where 0 means completely unacceptable and 6 means perfectly acceptable. The two AJTs tested the grammaticality contrast between S-V-Adv-X[3] and *S-Adv-V-X orders as in (78) and (79) and S-Cl-V versus *SV as in (80) and (81).

[3] X stands for direct objects, indirect objects, verb phrases or prepositional phrases

Figure 1. Written AJT: A question of a test item

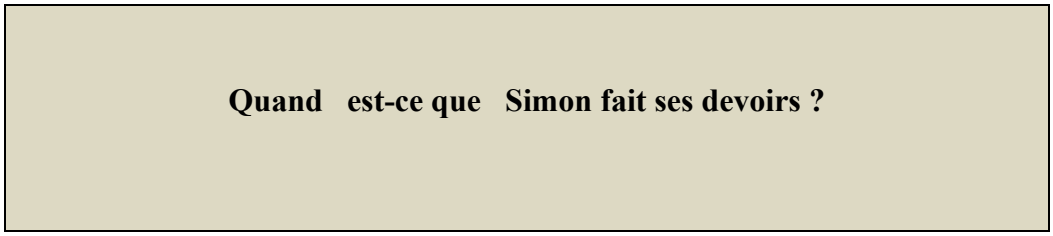


Figure 2. Written AJT: An answer of a test item

(78) Question*: Avec qui est-ce que Simon rentre à la maison ?*
with whom is-it that Simon returns to the home
'With whom does Simon return home?'

Answer: Il rentre **toujours** avec François. S-V-Adv-X
he returns always with François
'He always returns with François.'

(79) Question : As in (78), Question

Answer:*Il **toujours** rentre avec François. *S-Adv-V-X
he always returns with François

(80) Question *: Est-ce que tu vois tes amis ?*
is-it that you see your friends
'Do you see your friends?'

Answer : Oui, je **les** vois souvent. S-Cl-V
yes I them see often
'Yes, I often see them.'

(81) Question *: As in (80), Question*

Answer *:* *Oui, je vois souvent. *S-ø-V
Yes I see often

Table 8 and 9 illustrate the design of the AJTs. Each AJT had fifty tokens. Thirty tokens focused on adverbs, whereas twenty tokens tested object clitics. Two different types of tokens (adverb and clitics) acted as distractors for each other. Thirty adverb tokens were divided equally into fifteen grammatical and fifteen ungrammatical tokens. Twenty object clitic tokens consisted of an equal number of grammatical and ungrammatical tokens. Three categories of adverb condition were created, in order to test Hypotheses 1 and 2 about L1-transfer effect relating to focus in the L3 speakers. Focus is manipulated by means of different question structures preceding the sentences for judgement: Wh-object questions (ObjG and ObjU in Table 8), When questions (WhenG and WhenU) and Yes-no questions (YNG and YNG) (further details of design considerations relating to a possible L1-transfer effect of focus from Sinhala are given in Section 5.5.1.1). In the Wh-object-question and When-question conditions, the object[4] or time-adverbial, respectively, are focused in the response, while in the Yes-no-question conditions, the entire event is focused in the response (note that the different focuses do not yield different word orders in French, whereas in Sinhala they may do so.). In the Wh-object questions, frequency adverbials are not part of the questions. Therefore, including frequency adverbs as part of the answers could be unnatural. As I have previously explained, answers given to each Wh-object question manipulates focus related word order which is determined by the position of the adverbials. Including frequency adverbials in the Wh-object questions would not be possible as it is the property which is tested in the study. By including the adverbials in the question would mean that the researcher is influencing the judgements of the non-native speakers. Therefore, it was decided not to include

[4] Wh-object question is used as a blanket term as in in this condition direct or indirect objects could be focused in responses.

adverbials in the questions. Similarly, in the When-questions, the frequency adverbials are not included for the same reason that I have explained. Further, as discussed previously, researchers have already acknowledged that AJT tokens may appear quite unnatural for participants (Ionin & Zyzik, 2014). With respect to the clitic condition, two structures were created (ClG and CLU, see Table 9) to test Hypotheses 4 and 5 about L1-transfer effect in the L3 group. Further details relating to the transfer effect of preverbal pronominalization from Sinhala are outlined in Section 5.5.1.1.

Table 8. Design of the AJTs: Adverb conditions

Variables			Example	N
Type label	**Context**	**Structure**	**(*Context question in italics;* sentence for judgement in plain text)**	
ObjG	Wh-Object-question	S-V-Adv-X	*De quel instrument de musique est-ce que Simon joue ?* of What instrument of music is-it that Simon plays 'Which musical instrument does Simon paly*?'* Il joue **fréquemment** de la guitare à l' école. he plays frequently of the guitar at the School. ' He frequently plays the guitar at school'.	5
ObjU		*S-Adv-V-X	*[As ObjG]* *Il f**réquemment** joue de la guitare à l' école. he frequently plays of the guitar at the School.	5
WhenG	When-question	S-V-Adv-X	*Quand est-ce que Simon fait ses devoirs ?* when is-it that Simon does his homework 'When does Simon do his homework?' Il fait **toujours** ses devoirs le matin. he does always his homework the morning *'He always does his homework in the morning*.'	5
WhenU		*S-Adv-V-X	*[As WhenG]* *Il **toujours** fait ses devoirs le matin. He always does his homework the morning	5
YNG	Yes-no question	S-V-Adv-X	*Est-ce que tu penses que Simon fait ses devoirs ?* is-it that you think that Simon does his homework 'Do you think Simon does his homework?' Oui, je pense qu' il fait **souvent** ses devoirs. yes, I think that he does often his homework ''Yes, I think he often does his homework."	
YNU		*S-Adv-V-X	*[As YNG]* *Oui, je pense qu' il **souvent** fait ses devoirs. yes, I think that he often does his homework	5

Note: In the Type Label column "G" indicates "grammatical" and "U" indicates "ungrammatical''

Table 9. Design of the AJTs: Clitic condition

Variables		Example	N.
Type label	**Structure**	**(*Context question in italics;* sentences for judgement in plain text)**	
ClG	S-Cl-V	*Est-ce que tu vois tes amis?* is-it that you see your friends? 'Do you see your friends?' Oui, je **les** vois souvent. yes, I them see often. 'Yes, I see them often.'	10
ClU	*S-ø-V	[*As above]* *Oui, je vois souvent. yes, I see often	10

Note: In the Type Label column "G" indicates "grammatical", "U" indicates "ungrammatical.

5.5.1.1 Rationale for the AJTs

Three categories of adverb conditions were created to determine whether there is a possible effect of focus from Sinhala on L3 French acquisition. As explained in Chapter 3, the focused constituent is placed after the finite verb with the emphatic suffix in Sinhala. In accordance with this principle, in (82), *pot-ə* 'book' is focused (hereafter the focus element is in boldface), whereas *niterə 'often'* is focused in (83). This data demonstrates that the structures with adverbs present two sequences in Sinhala (S-Adv-V-O like English and S-V-Adv-O like French). The choice of the sequence depends upon the focus element in the sentence.

It was decided to include an audio AJT and a written AJT after considering the diglossic nature of Sinhala. In spoken Sinhala, object pronouns are omitted more frequently than in written Sinhala. Therefore, the degrees of acceptance predicted with regards to object clitics could be more pronounced in the audio AJT than in the written AJT.

(82) Question: oya niterə balann-e pot-ə də**?**
you often see-EMPH book-DEF Q
'Do you often read the book?'

Answer: ow mamə niterə balenn-e **pot-ə**
yes I often look-EMPH **book**-DEF
'Yes, it is the book I read often.'

(83) Question*:* As in 82, Question

Answer*:* ow mamə balenn-e **niterə** pot-ə
yes I look-EMPH **often** book-DEF
'Yes, I often read the book.'

In the Wh-object-question and When-question conditions the objects and time-adverbials are focused respectively. Therefore, if there is an L1-transfer effect, the L3 speakers will demonstrate the following behaviour in the AJTs. When they encounter the ObjG and ObjU conditions, they will demonstrate relatively low acceptance rates for the target S-V-Adv-X order compared to the ungrammatical S-Adv-V-X order because in Sinhala focus constructions, when an object of a sentence is in focus, it yields S-Adv-V-X order. However, with regards to the WhenG and WhenU conditions, they will show a different behaviour. Their acceptance rate for the target S-V-Adv-X order will be relatively higher compared to the ungrammatical S-Adv-V-X order because in Sinhala focus constructions, when an adverb of a sentence is in focus, it yields S-V-Adv-X order. In YNG and YNU conditions, the entire event is in focus. Therefore, the L3 speakers will accept S-V-Adv-X and *S-Adv-V-X orders as the two sequences are acceptable in Sinhala. Table 10 summarises these predictions which are common to both the audio and written AJT. If there is an L2-transfer effect, the L3 speakers will accept the ungrammatical *S-Adv-V-X order across all three conditions. The word order effect related to focus operates in both spoken and written AJT. Therefore, judgements of the L3 speakers on three adverb conditions are not expected to differ in the written and audio AJT.

With regards to object clitics, the experiment tested two conditions: ClG and ClU. CIG condition presents preverbal object clitic structures for judgement, whereas CIU condition presents structures with null object pronouns. In Sinhala, object pronouns are placed preverbally as in (84, answer a). Therefore, if there is an L1-transfer effect, the L3 speakers will attribute a higher rating to grammatical S-Cl-V structures. However, Sinhala also accepts null object pronouns as in (84, answer b). Therefore, if there is non-facilitative transfer from Sinhala, the L3 speakers may also attribute higher mean ratings to ungrammatical S-ø-V structures. In Spoken Sinhala, null object pronouns are accepted more frequently than in written Sinhala. Therefore, in the audio AJT, the L3 speakers may attribute higher mean ratings to the ungrammatical order (*S-ø-V) than in the written version. However, the predictions given in Table 11 are common to both the audio and written AJT, and they are motivated by facilitative transfer. If the source of transfer is English, then the L3 speakers will reject ungrammatical object clitic omission.

(84) *Question* :oyya Mala dækk-a də?
you Mala see-PST Q
'Did you see Mala?'

Answer (a): mamə **eya** dækk-a.
I her see-PST
'I saw her.'

Answer (b): mamə dækk-a.
I see-PST
'I saw her.'

Table 10. Predictions on word order acceptance: S-V-Adv-X vs *S-Adv-V-X

Variables		**Example**	**Degree of acceptance**
Type label	**structure**	**(*Context question in italics;* sentences for judgement in plain text)**	
ObjG	S-V-Adv-X	*De quel instrument de musique est-ce que Simon joue ?* of what instrument of music is-it that Simon plays ? *'Which musical instrument does Simon paly?'*	
		Il joue **fréquemmen**t de la guitare à l'école. he plays frequently of the guitar at School. 'He frequently plays the guitar at school.'	Low
ObjU	*S-Adv-V-X	*[As ObjG]*	
		*Il **toujours** rentre avec François. he always returns with François.	High
WhenG	S-V-Adv-X	*Quand est-ce que Simon fait ses devoirs ?* when is-it that Simon does his homework *'When does Simon do his homework?'*	
		Il fait **toujours** ses devoirs le matin. he does always his homework the morning *'He always does his homework in the morning*.'	High
WhenU	*S-Adv-V-X	*[As WhenG]*	Low
		*Il **toujours** fait ses devoirs le matin. he always does his homework the morning	
YNG	S-V-Adv-X	*Est-ce que tu penses que Simon fait ses devoirs ?* is-it that you think that Simon does his homework *'Do you think Simon does his homework'*	
		Oui, je pense qu' il fait **souvent** ses devoirs. yes, I think that he does often his homework. 'Yes, I think he often does his homework.'	High
YNU	*S-Adv-V-X	*[As YNG]*	High
		*Oui, je pense qu' il **souvent** fait ses devoirs. yes, I think that he often does his homework.	

Note: In the Type Label column "G" indicates "grammatical" and "U" indicates "ungrammatical''.

Table 11. Predictions on word order acceptance: S-Cl-V vs * S-ø-V

Variables		**Example**	**Degree of acceptance**
Type label	**Structure**	**(*Context question in italics;* sentences for judgement in plain text)**	
ClG	S-Cl-V	*Est-ce que tu vois tes amis?* is-it that you see your friends *'Do you see your friends?'* Oui, je **les** vois souvent. yes, I them see often. 'Yes, I see them often.'	High
ClU	*S-ø-V	[*As CIG]* **Oui, je vois souvent.* *yes, I see often*	Low

Note: In the Type Label column "G" indicates "grammatical" and "U" indicates "ungrammatical''.

5.5.2 Production task

The production task aimed to elicit oral production of adverbs and clitics in French. The production task included twenty-five tokens. Fifteen tokens focused on adverbs and ten tokens focus on object clitics. The adverb tokens and the clitic tokens acted as distractors for each other. The procedure for eliciting production for each token was as follows (see Figures 3 and 4). The participants first saw context sentences on a slide. Two seconds later, they were presented a picture of a person or people doing an activity while the context sentence remained in view. The context sentences helped the participants to understand the picture. The picture was immediately followed by a prompt word while the picture and context sentence remained in view. Finally, two seconds after the prompt word, the participants were presented a question. However, the preceding information still remained in view. The question was presented in both audio and written form. The participants were

instructed to answer the question orally, and to include the prompt words in their answers. The answers were audio recorded. Similar to the AJTs, the production task also included the three categories of adverb condition: Wh-object question, When-question and Yes-no question (see Tables 12). Three categories of adverb condition were created to shed light on whether there is an L1-transfer effect with regard to focus in the L3 group (further details relating to the rationale of the design is given in Section 5.5.2.1). Table 12 summarises the design for the adverb conditions. Table 13 summarises the design for the clitics.

Figure 3. *Production task: an adverb test item*

Le petit garçon s'appelle Simon. Il adore son chien.

souvent

1) Est-ce qu'il lave parfois son chien ?

Figure 4. *Production task: a clitic test item*

Simon a acheté un sandwich ce matin.

maintenant

8) Qu'est-ce qu'il fait avec ce sandwich ?

Table 12. Design of the Production task: Adverb condition

Adverb condition	**Example** (**Context statement in plain text;** ***Question in italic)***	N
Wh-Object-question	Charlotte adore la musique. Charlotte loves the music. 'Charlotte loves music.'  toujours *De quel instrument de musique joue-t- elle ?.* of which instrument of music plays she 'Which musical instrument is she playing?'	5
When-question	François aime aller au cinéma. François likes go the cinema 'François likes to go to the cinema.'  régulièrement *Quand est-ce qu' il va au cinéma ?* when is-it that he goes the cinema 'When does he go to the cinema?'	5
Yes-no question	Le petit garçon s'appelle Simon. Il adore son chien. the little boy calls Simon. he loves his dog 'The little boy's name is Simon.' 'He loves his dog'  souvent *Est-ce qu' il lave parfois son chien ?* is-it that he washes sometimes his dog 'Does he sometimes bath his dog?'	5

Table 13. Design of the Production Task: Clitic condition

Example (**Context statement in plain text*; Question in italic)***	N
Simon a acheté un sandwich ce matin. Simon has bought a sandwich this morning. "Simon has bought a sandwich this morning."  maintenant *Qu'est-ce qu'il fait avec ce sandwich ?* what he does with this sandwich 'What is he doing with the sandwich?'	10

5.5.2.1 Rationale of the Production task

The aim of the production task is the same as the AJTs. It compares L3 and L2 French in order to shed light on the source of transfer in L3 acquisition. Thus, this task provides a different form of evidence (oral production data) to complement the AJT data. Three categories of adverb condition were included to test Hypotheses (1) and (2) related to L1 transfer effect. Table 14 provides the target responses to three adverb test items given in Table 12. Table 15 shows the predictions based on L1 Sinhala transfer. In the Wh-object condition, the unknown information is related to a direct or indirect object. This can be understood by examining the example given in Table 15 (*which musical instrument does she play?).* The unknown information is the type of musical instrument that Charlotte plays, which is revealed by the picture. In a response given to the above question, Sinhala will use S-Adv-V-X structure because the musical instrument, which is the object of the sentence, is in focus and therefore, it will be placed after the finite verb, allowing S-Adv-V-O structure. In the When-question condition, the unknown information refers to the time adverbial (regularly). Therefore, the time adverbial will be in focus. A response given to this question in

Sinhala will have S-V-Adv-X structure because of word order effect related to focus. In the Yes-no question condition, the unknown information related to the entire event. Therefore, both sequences (S-V-Adv-X and S-Adv-V-X) are possible. Considering the above observation, if the performance is influenced by L1 transfer we can make the following predictions: in the Wh-object question and When-question conditions, the L3 speakers will use S-V-Adv-X and *S-Adv-V-X structures respectively. Both S-V-Adv-X and *S-Adv-V-X structures are predicted in the Yes-no condition. The Predictions for word are summarized in Table 15. The L3 speakers can also transfer from English. If the source of transfer is English, they will use the ungrammatical S-Adv-V-X order in their responses irrespective of the adverb condition.

In the clitic condition, they would most likely to use object clitic constructions if the L3 speakers experience facilitative transfer from Sinhala (see Table 15). However. Sinhala also allows null object pronouns. Under non-facilitative transfer from Sinhala, the L3 speakers will omit object clitics more frequently.

With regards to object clitics, we can also predict transfer from English. If the L3 speakers transfer from English, their results would be similar to that of the L2 speakers. Under L2 transfer, the most straightforward prediction would be to think that the L3 speakers would place the clitics postverbally like English. However, the previous studies show that placement errors of object clitics are rare even at the initial stage of L2 acquisition of French (Rogers, 2009). Schwartz and Sprouse (1994) show that object clitics develop in L1 French after other functional categories and they state that before the development of object clitics, there is a high rate of object clitic omission in L1 child French. Hamann, Rizzi and Frauenfelder (1996) state that object clitic omission declines as soon as child L1 French speakers start using clitics. They also state that child L1 French speakers rarely make placement errors once they start to

use object clitics. Previous research has also shown that the development of object clitics in L1 and L2 French shows a similar pattern (Schwartz & Sprouse, 1994; Hamann, Rizzi & Frauenfelder, 1996; White, 1996; Paradis, 2004; Granfeldt & Schlyter, 2004). White (1996) Paradis (2004) has shown that object clitics emerge in L2 French much later than other functional categories. White (1996) Paradis (2004) have shown that in L2 French, object clitic omission disappears with the appearance of object clitics. They also note that once L2 French learners start to use object clitics, they rarely make placement error. Therefore, the L3 speakers in this study are unlikely to make placement errors. Some studies have shown that the L1-English–L2 French speakers would use S-V-O order as an avoidance strategy (Gruter & Crago, 2011; Gruter, 2005; White, 1996; Paradis, 2004). Rogers (2006) argues that the use of object clitics is associated with the projection of IP. According to Rogers, the L2 French learners' strong preference for SVO structure suggests that they try to avoid the projection of IP (more details are given in Chapter 6). Following these findings, the present study also predicts that the L3 speakers would use DPs instead of object clitics in French.

Table 14. Target answer in the production task

Conditions	Test item	Target response
Wh-Object-question	Charlotte adore la musique. *De quel instrument de musique joue-t-elle ?*	Elle joue **toujours** du piano. she often plays of piano 'She often plays piano.'
When question	François aime aller au cinéma. *Quand est-ce qu'il va au cinéma ?*	Il va **régulièrement** au cinéma. he goes regularly the cinema 'He regularly goes to the cinema.'
Yes-no question	Le petit garçon s'appelle Simon. Il adore son chien *Est-ce qu'il lave parfois son chien ?*	Non, il lave **souvent** son chien. no he washes often his dog 'No, he often washes his dog.'
Clitic	Simon a acheté un sandwich ce matin. *Qu'est-ce qu'il fait avec ce sandwich ?*	Il **le** mange maintenant. he it eats now 'He eats it now .'

Table 15. Predictions for word order based on L1 transfer

Conditions	Test item	Predicted word order	Example of predicted answer
Wh-Object-question	Charlotte adore la musique.  toujours De quel instrument de musique joue-t-elle ?	*S-Adv-V-X	Elle **toujours** joue du piano. she often plays of piano 'She often plays piano.'
When-question	François aime aller au cinéma.  régulièrement *Quand est-ce qu'il va au cinéma ?*	S-V-Adv-X	Il va **régulièrement** au cinéma. he goes regularly the cinema 'He regularly goes to the cinema.'
Yes-no question	Le petit garçon s'appelle Simon. Il adore son chien	S-V-Adv-X	Non, il lave **souvent** son chien. no he washes often his dog
	 souvent Est-ce qu'il lave parfois son chien ?	*S-Adv-V-X	Non, il **souvent** lave son chien. no he often washes his dog 'No, he washes often his dog.'
Clitic	Simon a acheté un sandwich ce matin.  maintenant *Qu'est-ce qu'il fait avec ce sandwich ?*	S-Cl-V	Il **le** mange maintenant. he it eats now 'He eats it .'

5.6 English test instruments

For the L3 speakers, the French test instruments were followed by the English experimental tasks, in order to gain a measure of the L3 speakers' L2 knowledge of adverbs and object pronouns in English. Due to the long nature of the experiment, the L3 speakers took a 5-minute rest break prior to commencing the English test instruments, which included an audio acceptability judgement task and a production task. In addition to the L3 speakers, the L1 English control group also completed these tasks.

5.6.1 Audio acceptability judgement task (English version)

This task tested English versions of the same tokens used in the French audio AJT. The tokens in the French audio AJT were translated into English. Minor changes to certain proper nouns were made as part of the French-to-English translation process (e.g., changing the French supermarket name Carrefour to an English one, Tesco). The design and procedure were the same as in the French audio AJT: the participants judged the answers given by the second person in the dialogues and the judgments of the participants were measured on a seven-point Likert scale. The AJT tested the grammaticality contrast between S-Adv-V-X and *S-V-Adv-X orders as in (85) and (86) and S-V-ObjPro versus *SV orders as in (87) and (88).

(85) *Question: With whom does Simon return home?*

Answer: He **always** returns with François. S-Adv-V-X

(86) *Question: As in (85), Question*

Answer: *He returns **always** with François *S-V-Adv-X

(87) *Question: Do you see your friends?*

Answer: Yes, I often see **them**. S-V-ObjPro

(88) *Question*: *As in (87), Question*

Answer: *yes, I see often. *S-V-ø

Tables 16 and 17 illustrate the design of the AJT. Similar to the French AJTs, three categories of adverb condition were manipulated with the purpose of testing Hypotheses (7) and (8) about L1-transfer effect relating to focus in the L3 group. If the L1-Sinhala–L2-English speakers are influenced by Sinhala, they will accept the target word order for ObjG condition. However, they will reject the target word order for WhenG (see Table 18). As explained in Section 5.5.2, in the French AJT, the opposite pattern was predicted for the two conditions. As noted previously, the English AJT used English versions of the tokens used in the French audio AJT. When the test items were translated into English, one of the sentence pairs comprised two grammatical sentences, rather than one grammatical and one ungrammatical sentence (more details about this sentence pair are given in Chapter 6). With respect to object pronoun condition, two structures were created (ObjProG and ObjProU) to test Hypotheses (9) and (10) about L1-transfer effect in the L3 group. If the L3 speakers experience facilitative transfer from Sinhala, they will accept the target S-V-ObjPro order. However, under non-facilitative transfer, they will also accept the ungrammatical S-V-ø structures. The predictions given in Table 19 are motivated by facilitative transfer.

Table 16. Design of the English AJT: Adverb condition

Variables			**Example**	**N**
Type label	**context**	**Structure**	**(*Context question in italics;* sentences for judgement in plain text)**	
ObjG	Wh-Object-question	S-Adv-V-X	*Which musical instrument does Simon paly?* He **frequently** plays the guitar at school.	5
ObjU		*S-V-Adv-X	*[As ObjG]* * He plays **frequently** guitar at school.	5
WhenG	When question	S-Adv-V-X	*When does Simon do his homework?* He **always** does his homework in the morning.	5
WhenU		*S-V-Adv-X	*[As WhenG]* He does **always** his homework the morning.	5
YNG	Yes-no question	S-Adv-V-X	*Do you think Simon does his homework?* Yes, I think he **often** does his homework	5
YNU		*S-V-Adv-X	*[As YNG]* Yes, I think he does o**ften** his homework.	5

Note: In the Type Label column "G" indicates "grammatical" and "U" indicates "ungrammatical.''

Table 17. Design of the English AJT: Object pronoun condition

Variables		**Example**	**N**
Type label	**Structure**	**(*Context question in italics;* sentences for judgement in plain text)**	
ObjProG	S-V-ObjPro	Do you see your friends? Yes, I often see **them**.	10
ObjProU	*S-V- ø	*[As ObjproG]* *yes, I see often.	10

Note: In the Type Label column "G" indicates "grammatical" and "U" indicates "ungrammatical.''

Table 18. *Prediction for word order acceptance: S-V-Adv-X vs *S-Adv-V-X*

Variables		**Example**	**Degree of acceptance**
Type label	**structure**	**(*Context question in italics;* sentences for judgement in plain text)**	
ObjG	S-Adv-V-X	*Which musical instrument does Simon paly?*	
		He **frequently** plays the guitar at school.	High
ObjU	*S-V-Adv-X	*[As ObjG]*	
		* He plays **frequently** guitar at school.	Low
WhenG	S-Adv-V-X	*When does Simon do his homework?*	
		He **always** does his homework in the morning.	Low
WhenU	S-V-Adv-X	*[As WhenG]*	
		He does **always** his homework the morning.	High
YNG	S-Adv-V-X	*Do you think Simon does his homework?*	
		Yes, I think he **often** does his homework	High
YNU	*S-V-Adv-X	*[As YNG]*	
		Yes, I think he does o**ften** his homework.	High

Note: In the Type Label column "G" indicates "grammatical" and "U" indicates "ungrammatical.''

Table 19. Prediction for word order acceptance: S-V-ObjPro vs *S-V- ø

Type label	**Structure**	**Example (*Context question in italics;* sentence for judgement in plain text)**	**Degree of acceptance**
ObjProG	S-V-ObjPro	Do you see your friends?	High
		Yes, I often see **them**.	
ObjProU	*S-V- ø	*[As ObjproG]*	Low
		*yes, I see often.	

Note: In the Type Label column "G" indicates "grammatical" and "U" indicates "ungrammatical**.''**

5.6.2 Production task (English version)

The English production task followed the same format as the French version. It aimed at eliciting oral production of adverbs and object pronouns in English. The English and French production tasks had the same tokens. The tokens in the French production task were translated into English making minor changes to certain proper nouns. The procedure of presenting tokens in this task was similar to the French production task as illustrated in Table 20. The L3 speaker and L1 English speakers

were instructed to answer the questions in English and to use the prompt words in their answers. The aim of this task is to determine whether there is a possible L1-transfer effect in the L3 speakers' production of adverbs and object pronouns in English. If there is transfer from their L1 Sinhala, it will yield different word orders in L3 speakers' responses as illustrated in Table 21. The L3 speakers would use the grammatical S-Adv-V-X order in the Wh-object question condition while the ungrammatical S-V-Adv-X order is expected in the When-question condition. In the Yes-no condition, they would use both structures as no specific constituent is in focus. In the object pronoun condition, under facilitative transfer, they will use overt object pronouns while under non-facilitative transfer, they would omit object pronouns in English. The predictions given in Table 21 are motivated by facilitative transfer.

Table 20. Design of the English Production task

Adverb and object pronoun conditions	**Example**	N
	(Context statement in plain text; *Question in italic)*	
Wh-Object-question	Charlotte loves music.  *always* *Which musical instrument is she playing?*	5
When-question	François likes to go to the cinema.  *regularly* *When does he go to the cinema?*	5
Yes-no question	The little boy's name is Simon. He loves his dog  *often*	5
Object pronoun	*Simon has bought a sandwich this morning.*  maintenant *What is he doing with the sandwich?*	10

Table 21. Predictions for word order in the English production task

Conditions	Test item	Predicted word order	Example of predicted answer
Wh-Object-question	Charlotte loves music.  toujours *Which musical instrument is she playing?*	S-Adv-V-X	She often plays the piano.
When-question	François likes to go to the cinema.  régulièrement *When does he go to the cinema?*	*S-V-Adv-X	*He goes regularly to the cinema[5].
Yes-no question	The little boy's name is Simon. He loves his dog.  souvent *Does he sometimes bath his dog?*	*S-V-Adv-X S-Adv-V-X	*No, he washes often his dog No, he often washes his dog.
ObjPro	Simon has bought a sandwich this morning.  maintenant *What is he doing with the sandwich?*	S-V- ObjPro	He eats it.

[5] It would be the dispreferred word order

5.7 Procedure

Ethical approval was obtained from the author's university department ethics committee. All participants received a small monetary compensation for their participation. After completing a consent form, the participants completed a short language background questionnaire. The L3 group completed the tasks in the order given in (89). The L2 group completed all the task given in (89), except the English proficiency test and the English test instruments. The native control groups completed the experimental tasks in their respective L1. However, they did not complete the proficiency tests. All instructions were given in English. There was no time constraint on finishing the experimental tasks which the participants were aware of. All participants completed the experimental tasks and proficiency tests on the same day.

(89)

a. French proficiency test
b. Audio acceptability judgement task
c. Written acceptability judgement task
d. Production task
e. English acceptability judgment task
f. English production task
g. English proficiency test

5.8 Conclusion

This chapter has detailed the participants and tasks used in the present study. It also outlines how the hypotheses are tested in the experiment. The next chapter reports the results of this experiment.

Chapter 6

Results

6.1 Introduction

This chapter reports the results for the experimental tasks administered to the participants as outlined in Chapter 5. The experimental tasks endeavour to test knowledge of adverb placement and object pronominalization in L3 French and L2 English. The results are presented in the following order. The results for adverb placement in French and English are presented first before turning to the results for object clitics in French and object pronouns in English. In Chapter 7, the results presented in this chapter are discussed in light of the hypotheses outlined in Chapter 4.

6.2 Adverb placement across tasks

6.2.1 French test instruments

The French test instruments consisted of three tasks: an audio AJT, a written AJT and a production task. The results of the two AJTs are reported first before turning to the results of the production task in Section 6.2.1.3 As outlined in Chapter 5, three categories of adverb condition were created, in order to test the hypothesis about L1-transfer relating to focus in the L3 speakers. The next section presents the results for the three adverb conditions: Wh-object question, When-question and Yes-no question.

6.2.1.1 Audio acceptability judgement task

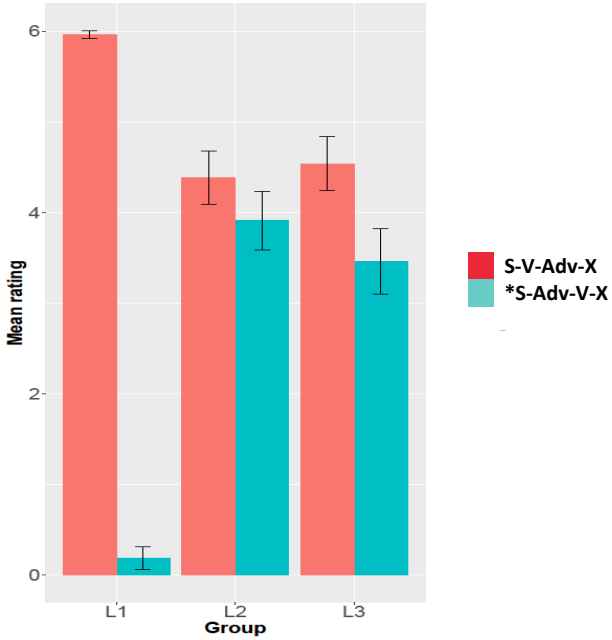
The descriptive statistics for all three adverb conditions are reported in Table 22. Figures 5-7 provide visualisation of each adverb condition separately.

Table 22. Audio AJT mean ratings on adverb conditions (scale = 0-6)

	Structure	L1 French		L2 French		L3 French	
		Mean	SD	Mean	SD	Mean	SD
Wh-Object question	S-V-Adv-X	5.94	0.18	4.38	1.70	4.54	1.86
	*S-Adv-V-X	0.18	0.56	3.91	1.91	3.46	2.27
When-question	S-V-Adv-X	5.94	0.28	4.37	1.98	4.66	1.85
	*S-Adv-V-X	0.20	0.61	3.96	1.68	3.62	2.15
Yes-no question	S-V-Adv-X	5.92	0.25	4.75	1.72	4.60	1.76
	*S-Adv-V-X	0.10	0.46	3.93	1.86	3.56	2.10

In the Wh-object question condition, it is clear from Table 22 and Figure 5 that the French native speakers distinguish very strongly between the grammatical and ungrammatical structures. They attribute a mean rating close to 6 to the grammatical word order and a mean rating close to 0 to the ungrammatical word order. The non-native speakers do not distinguish greatly between the grammatical and ungrammatical structures, with mean ratings of only 4.38-4.45 on the grammatical structure, and just slightly lower ratings (3.91-3.46) on the ungrammatical structure. However, the L3 group makes a bigger differentiation between the grammatical and ungrammatical structures than the L2 group. In the L3 group, for all three structures, the differences between grammatical and ungrammatical is greater than 1 point on the scale, whereas, in the L2 group, it is less than 1 point. Hence, the confidence interval bars do not overlap within the L3 speakers, which suggests that they make a distinction between the grammatical and ungrammatical structures (see Figure 5). However, with regards to the L2 speakers, the confidence interval bars overlap. According to Larson-Hall (2016) "if there is no overlap and the ends of C1s have a gap between them, then $p < 0.01$" (p. 85). This suggests that the L2 speakers do not differentiate the structures: S-V-Adv-X and *S-Adv-V-X.

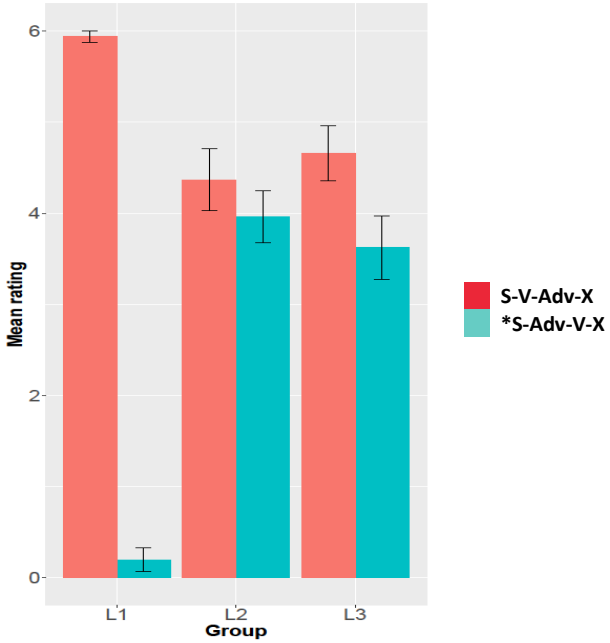
Figure 5. Audio AJT mean ratings on Wh-object question condition with 95% CIs[6]



Turning to the When-question condition, again, the French native speakers strongly differentiate S-V-Adv-X orders from *S-Adv-V-X orders. They do this by attributing a very high mean rating (close to the maximum) to the grammatical word order and a very low mean rating (close to the minimum) to the ungrammatical structure. However, the non-native groups look different from the French native group. Similar to the previous condition, the non-native speakers do not make a strong distinction between the grammatical and ungrammatical structures, with mean ratings of only 4.37-4.66 on the grammatical structure, and just lower mean ratings (3.96-3.62) on the ungrammatical structure. Figure 6 shows a similar picture to Figure 5. The examination of the confidence interval bars in Figure 6 suggests that the L3 speakers successfully distinguish between the grammatical and ungrammatical structures. However, the confidence interval bars overlap within the L2 speakers. This indicates that this difference is not statistically significant (Larson-Hall, 2016, p. 85).

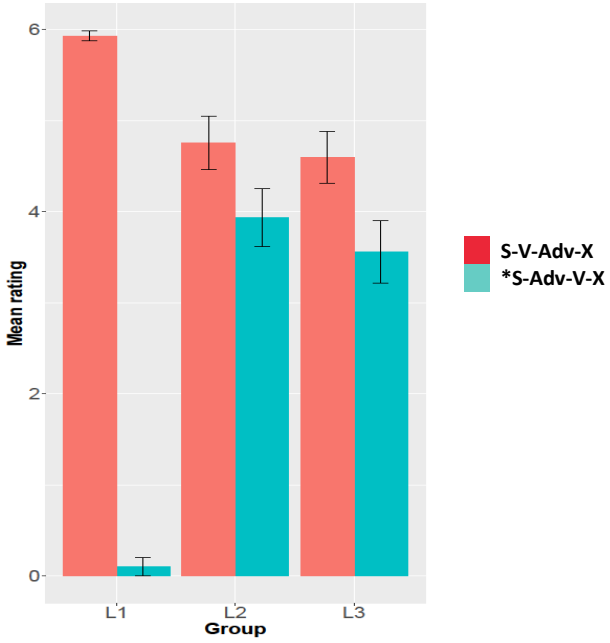
[6] 95% confidence interval

Figure 6. Audio AJT mean ratings on When-question condition with 95% CIs



Turning to the Yes-no question condition, the results for the French native speakers and L3 speakers are comparable to the two previous conditions (see Table 22 and Figure 7). The French native group clearly differentiates the grammatical structure from the ungrammatical structure. The L3 speakers attribute a mean rating of 4.60 to the grammatical structure and a mean rating close to 4 to the ungrammatical structure. An inspection of the confidence interval bars suggests that the L3 speakers differentiate S-V-Adv-X orders from *S-Adv-V-X orders. With regards to the L2 speakers, their differentiation between the grammatical (4.75) and ungrammatical (3.93) adverb placement is slightly bigger than in the previous two conditions. Moreover, the confidence interval bars do not overlap within the L2 speakers, suggesting that they make a distinction between the grammatical and ungrammatical sequences. However, Figure 7 shows that the differentiation between grammatical and ungrammatical structure is slightly bigger in the L3 group than in the L2 group.

Figure 7. Audio AJT mean ratings on Yes-no question condition with 95% CIs

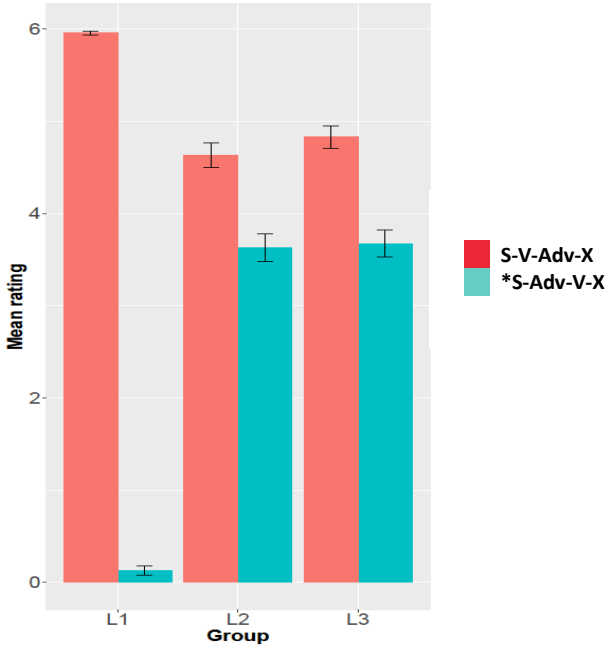


Finally, Table 23 and Figure 8 present the mean ratings for the three adverb conditions collapsed together. The judgements of the native speakers further confirm their robust distinction between the grammatical and ungrammatical structures across the three adverb conditions. Interestingly, the indeterminacy that the L2 results showed in the separate analyses of the Wh-object questions and the When-questions are no longer discernible when the three adverb structures are collapsed together (see Figure 8). Both the L2 and L3 groups appear to differentiate between grammatical and ungrammatical, in that within each group, the confidence interval bars for the two conditions do not overlap. Moreover, Figure 8 also shows that the judgment patterns of the non-native speakers are relatively isomorphic when the three adverb conditions are considered together.

Table 23. Audio AJT mean ratings on S-V-Adv-X versus *S-Adv-V-X (scale = 0-6)

Group	Word order	Mean	SD
L1 French	S-V-Adv-X	5.95	0.21
	*S-Adv-V-X	0.12	0.49
L2 French	S-V-Adv-X	4.63	1.81
	*S-Adv-V-X	3.62	1.99
L3 French	S-V-Adv-X	4.83	1.70
	*S-Adv-V-X	3.67	2.04

Figure 8. Audio AJT mean ratings on S-V-Adv-X versus *S-Adv-V-X with 95% CIs



Further analysis of the audio AJT results, using linear mixed effects modelling, is reported after the descriptive statistics for the written version of the AJT have been reported.

6.2.1.2 Written acceptability judgement task

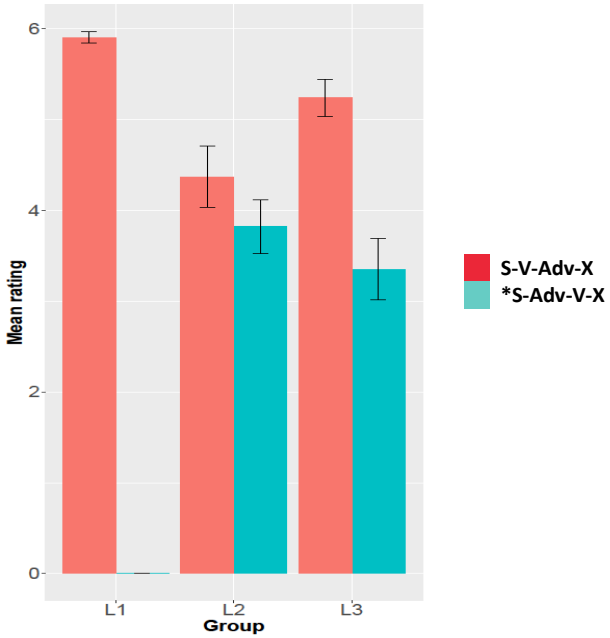
Table 24 presents the descriptive statistics for all three adverb conditions. Figures 9-11 provide the mean ratings on each condition separately.

Table 24. Written AJT mean ratings on adverb conditions (scale = 0-6)

	Structure	L1 French		L2 French		L3 French	
		Mean	SD	Mean	SD	Mean	SD
Wh-Object-question	S-V-Adv-X	5.90	0.29	4.37	1.98	5.24	1.24
	*S-Adv-V-X	0.00	0.00	3.82	1.75	3.35	2.09
When-question	S-V-Adv-X	6.00	0.00	4.58	1.70	4.97	1.73
	*S-Adv-V-X	0.01	0.10	3.26	2.12	3.32	2.27
Yes-no question	S-V-Adv-X	6.00	0.00	4.60	1.46	4.80	1.81
	*S-Adv-V-X	0.08	0.41	3.96	1.85	3.26	2.31

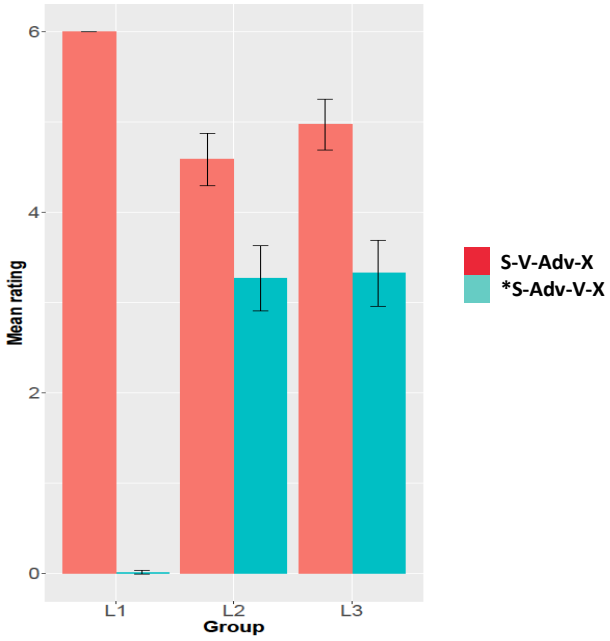
The written AJT results for the Wh-object question condition are similar to the audio AJT results. Let us first establish the native pattern of judgements. Grammatical S-V-Adv-X orders receive a very high mean rating while ungrammatical S-Adv-V-X orders have a very low mean rating. This clearly suggests that the French native speakers distinguish very strongly between the grammatical and ungrammatical structures. The L3 speakers attribute a mean rating of 5.23 to the grammatical structure and a mean rating just above 3 to the ungrammatical structure. Moreover, the examination of the confidence interval bars suggests that the L3 speakers distinguish between the grammatical and ungrammatical structures. However, Figure 9 shows that the L2 speakers do not distinguish between the two structures. Therefore, the results suggest that the non-native groups are different from each other.

Figure 9. Written AJT mean ratings on Wh-object question condition with 95% CIs



In the When-question condition, again, the native French group greatly differentiates between the grammatical and ungrammatical structures, with a mean rating of 6 on the grammatical structure and a mean rating very close to 0 on the ungrammatical structure. Turning to the L2 group, they attribute a mean rating of 4.63 to the grammatical structure and a mean rating of 3.82 to the ungrammatical structure. In Figure 10, the confidence interval bars do not overlap within the L2 speakers. This indicates that the L2 group differentiates the grammatical and ungrammatical sequences. Figure 10 shows that the L3 speakers look very similar to the L2 speakers because the two groups make a distinction between the grammatical and ungrammatical structures.

Figure 10. Written AJT mean ratings on When-question condition with 95% Cls



Turning to the Yes-no question condition, the results for the three groups are comparable to the audio AJT results. The French native group strongly rejects the ungrammatical structure and accepts the grammatical structure. A closer inspection of the confidence interval bars in Figure 11 suggests that like the French native group, the non-native groups make a clear distinction between the grammatical and ungrammatical sequences. However, the L2 differentiation between the grammatical and ungrammatical structures is relatively smaller than the L3 differentiation.

Figure 11. Written AJT mean ratings on Yes-no question condition with 95% CIs

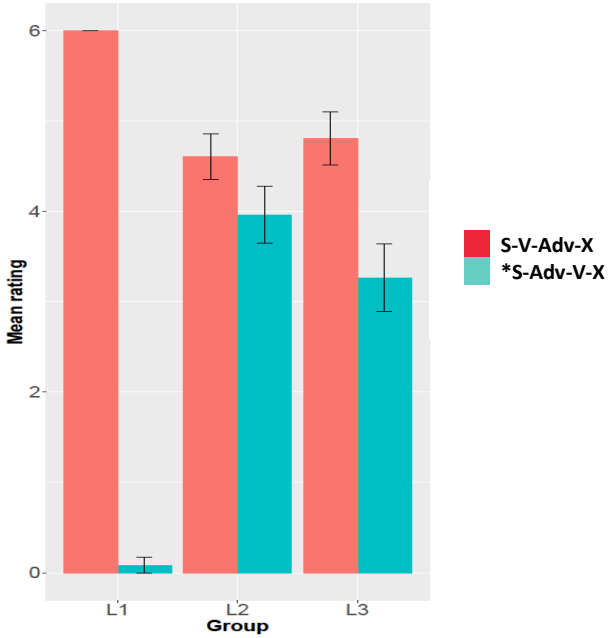
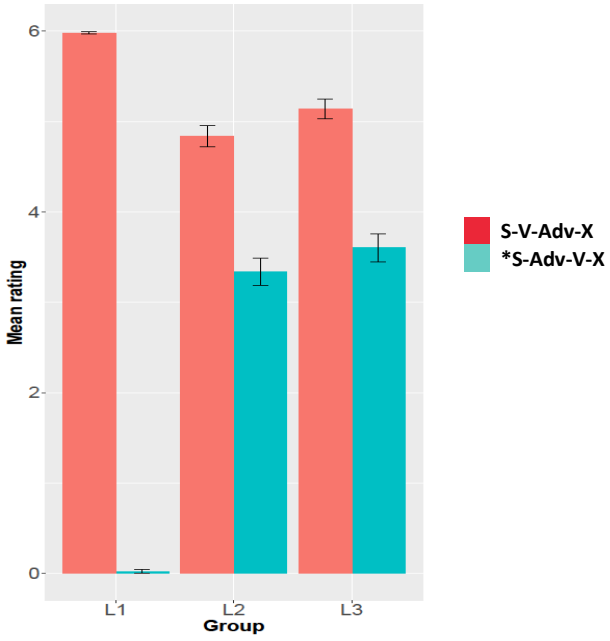


Table 25 and Figure 12 present the mean ratings for the three adverb conditions collapsed together. The native group, again, strongly rejects the grammatical S-Adv-V-X order and accepts the target S-V-Adv-X orders. The non-native patterns of judgments given in Figure 12 show that the two non-native groups look similar to each other. Interestingly, the indeterminacy that the L2 group evinces in the separate analysis of the Wh-object question condition is no longer visible when the three adverb conditions are considered together. The confidence interval bars do not overlap within the non-native speakers. This shows that the non-native groups make a distinction between the grammatical and ungrammatical sequences. However, they do not do it with such stark differentiation as the native French group because the mean ratings they attributed to the ungrammatical structure is close to the mid-point of the scale.

Table 25. Written AJT mean ratings on S-V-Adv-X versus *S-Adv-V-X (scale = 0-6)

Group	Word order	Mean	SD
L1 French	S-V-Adv-X	5.98	0.13
	*S-Adv-V-X	0.02	0.20
L2 French	S-V-Adv-X	4.84	1.55
	*S-Adv-V-X	3.33	1.99
L3 French	S-V-Adv-X	5.14	1.57
	*S-Adv-V-X	3.60	2.15

Figure 12. Written AJT mean ratings on S-V-Adv-X versus *S-Adv-V-X with 95% Cls



6.2.1.3 Individual results

I first considered results from both AJTs together. With regard to adverb placement, 50.70% of the time, the non-native speakers rated grammatical adverb sentences at least 1 point higher than their ungrammatical counterpart. Further, 21.75% of the time they rated ungrammatical adverb sentences at least 1 point higher than the grammatical adverb sentences. On other occasions, the ratings that they attributed to grammatical and ungrammatical adverb sentences are similar (27.72%). Turning to the clitic sentences, 63.60% of the time, the non-native speakers rated the grammatical

sentences at least 1 point higher than their ungrammatical counterpart. 12.60% of the time, they rated ungrammatical sentences at least 1 point higher than the grammatical sentences. On other occasions, they had the same ratings for both grammatical and ungrammatical sentences (23.80%). Let's now consider the L3 speakers and L2 speakers separately. First, I consider the audio AJT results. With respect to the Wh-object question condition, 46% of the time, the L3 speakers rated the adverb grammatical sentences at least 1 point higher than their ungrammatical counterpart. However, the L2 speakers showed less consistency in rating the grammatical adverb sentences higher than the ungrammatical counterparts (34.07%). With respect to the When-question condition, in contrast to the L2 speakers (44.44%), the L3 speakers showed more consistency in rating the grammatical adverb sentences higher than the ungrammatical counterparts (55.33%). Turning to the Yes-no question condition, both L3 speakers and L2 speakers showed very similar consistency in rating the grammatical adverb sentences (52% and 51%). On these occasions, they rated the ungrammatical sentences at least 1 point higher than the grammatical sentences. With regards to the clitic sentences, in contrast to the L3 speakers (57%), the L2 speakers showed more consistency in rating the grammatical clitic sentences higher than the ungrammatical sentences (64.07%).

I now consider the written AJT results. With respect to the Wh-object question condition, 64% of the time, the L3 speakers rated the adverb grammatical sentences at least 1 point higher than their ungrammatical counterpart. However, the L2 speakers showed were less consistent in rating the grammatical adverb sentences higher than the ungrammatical adverb sentences (50.37%). Turning to the When-question condition, in contrast to the L2 speakers (56.29%), the L3 speakers were less consistent in rating the grammatical adverb sentences higher than the ungrammatical adverb sentences (52.66%). Regarding the Yes-no question condition, differently from the L2 speakers

(45.18%), the L3 speakers showed more consistency in rating the grammatical adverb sentences higher than the ungrammatical adverb sentences (54.61%). With respect to rating the grammatical clitic sentences higher than the ungrammatical counterparts, the L2 speakers (66.53%) showed more consistency than the L3 speakers (60.05%).

6.2.1.4 Inferential statistics

Let us turn to the inferential statistics for the two AJTs. Following the practice suggested by Schütze and Sprouse (2013), the mean ratings of the AJTs are converted to z-scores because according to the authors, "each participant's responses should be transformed using the z-score transformation to eliminate the potential scale bias" (p. 43). I analysed the z-scores from both tasks together using linear mixed effects models in the lme4 package (Bates, Maechler, Bolker & Walker 2015), in R (R Core Team, 2019). As noted in Chapter 4, the present study aims to understand the differences between the L2 and L3 speakers. Further, the present study explicitly makes predictions about the differences between the L2 and L3 groups. However, the study does not make predictions about the differences between the native speakers and the non-native speakers. Therefore, the data from the native speakers were not included in the mixed model analysis. Similarly, Dekydtspotter, Sprouse and Swanson (2001) do not compare their native speakers with the non-native speakers as their study does not make predictions about the difference between the native group and non-native groups. Further, they report the L1 results separately from the L2 results, and they state that ''results provided by our group of native speakers show the instrument to be valid'' (p. 193). In other words, the authors wanted to find out whether the syntactic distinction that they are trying to measure can be achieved using a truth-value judgement task. Similarly, in my study, the L1 data allows us to check

whether the AJTs really measure the grammaticality contrast between S-V-Adv-X and *S-Adv-V-X structures.

Turning to the analysis, initially, all the fixed effects that are used in the hypotheses were included in the model, namely task (audio v. written), grammaticality (grammatical v. ungrammatical), group (L3 v. L2), and type (Wh-object question, When-question, and Yes-no-question). Following Cunnings (2012), random intercepts for participants and items were also included, and addition of participant and item random slopes for grammaticality was attempted. However, the model failed to converge when item random slopes for grammaticality were added, so this element was omitted. Analysis of the summary of this model showed that there were no significant interactions involving the type variable, nor was the main effect of this variable significant. This suggests that the type variable did not affect the ratings. Therefore, a second model that excluded the type variable was run. Statistical comparison of this model (task × grammaticality × group) with the original model (task × grammaticality × group × type) using ANOVA yielded a lower Akaike Information Criterion (AIC) for the second model than the first (9389.4 compared with 9410.6), which suggests that the fit of the second model (excluding type) is better than the fit of the first, although the difference was not significant ($\chi^2(1)$ 10.712, p = .83).[7] However, on the basis of the lower AIC, and given that the three-way interaction is conceptually easier to interpret than a four-way interaction, I focus on this model here. To control for any effect of proficiency, a third model that included the proficiency test scores was run. This did not decrease the AIC (9391.1) or significantly improve the model fit ($\chi^2(1)$ 0.23, p = .63), suggesting that proficiency scores did not affect

[7] The AIC value is a statistical measure computed during model comparison. Levshina (2015, p.149) explains that the lower the value, the better the model fit, in the sense that inclusion of variables that do not substantially contribute to the model fit yields higher AIC values.

ratings, so proficiency is excluded from the model reported in Table 26. Taking t-values of >1.94 or <−1.94 to indicate a significant effect (Larson Hall, 2016, p. 64), it is clear from Table 26, that there is a significant three-way interaction of Task by Grammaticality by Group, as well as an interaction of Grammaticality by Group, and a significant main effect of Grammaticality. We can again have a sense of the source of three-way interaction from the mean ratings reported in Table 25 and Figures 5-11, but for further understanding of the three-way interaction in Table 26, Figures 13 and 14 using mean ratings are presented. Figures 13 and 14 present the mean ratings by grammaticality and task, for the L3 group and the L2 group, respectively. Comparing these two figures, it is clear that the L3 group differentiates similarly between the grammatical and ungrammatical adverb placement, regardless of task, whereas the L2 group hardly differentiates the two structures in the audio task. This is the source of the significant three-way interaction.

Table 26. Linear mixed effects model estimates of z-scores. The random effects structure included the by-participant and by-item random intercepts

	Estimate	***SE***	***t***
(Intercept)	−0.172	0.075	−2.294
task	0.144	0.091	1.590
grammaticality	0.266	0.091	**2.928**
group	−0.027	0.083	−0.323
task × grammaticality	−0.150	0.129	−1.167
task × group	0.065	0.090	0.721
grammaticality × group	0.304	0.090	**3.364**
task × grammaticality × group	−0.453	0.128	**−3.541**

Figure 13. Audio and Written AJT mean ratings on S-V-Adv-X versus *S-Adv-V-X with 95% CIs, for L2 speakers

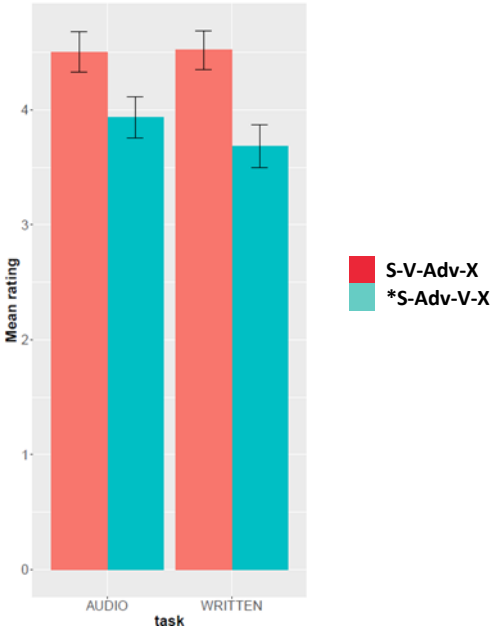
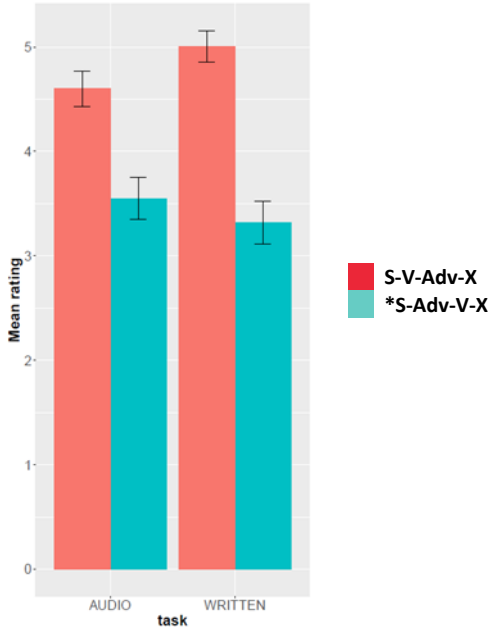


Figure 14. Audio and Written AJT mean ratings on S-V-Adv-X versus *S-Adv-V-X with 95% CIs, for L3 speakers



In summary, the native pattern of judgements in the audio AJT remains unchanged in the written AJT. The native group clearly rejects the ungrammatical adverb placement and accepts the grammatical adverb placement in French. The results show a significant main effect of Grammaticality along with the non-overlapping CI bars for each grammatical and ungrammatical contrast (Figures 13–14). The results of the linear mixed effects model (Table 26) suggest that the non-native speakers also differentiate the grammatical adverb placement from the ungrammatical adverb placement in the two AJTs. However, they do not do it with such a stark differentiation as the French native group. The non-native speakers attributed a relatively high mean rating to the ungrammatical structure (3.33/3.60). One of the reasons for the non-native group's relatively higher mean ratings to the ungrammatical structure could be that the non-native speakers could be less confident than the native speakers in choosing ratings at the extremes of the scale. In other words, in general, non-native speakers are likely to be less confident than native speakers about judgements in their L2/L3 and consequently may hesitate to select the lowest and highest points of the scale. Therefore, the two groups might not be fully confident using the scale. Other factors like the familiarity of the vocabulary of the AJTs, degree of concentration and engagement with the tasks could also affect the judgements of the participants. Plonsky et al. (2019) also explain that it is not always easy for non-native speakers to show native level of sensitivity to grammaticality. They argue that the purpose of judgement tasks is not to find out where on the rating scale response fall, but to find out whether non-native speakers are sensitive to grammatical and ungrammatical conditions.

The descriptive statistics suggest that L2 differentiation between the two structures in the AJTs is relatively smaller than the L3 differentiation. This was

reflected in the inferential statistics–the non-native speakers show a significant interaction of Grammaticality by Group on adverb placement. This further confirms that the L3 group performed better than the L2 group. Interestingly, there is also a significant three-way interaction of Task by Grammaticality by Group. The 3-way interaction suggests that the L3 group differentiates similarly between the grammatical and ungrammatical adverb placement, regardless of task, whereas the L2 group hardly differentiates the two structures in the audio task.

6.2.1.5 Production task

As outlined in Chapter 5, the production task aimed to elicit oral production of adverbs and clitics in French. The production task included the three adverb conditions: Wh-object question, When-question and Yes-no question. The results for all three adverb conditions are in Table 27.

Table 27. Percentage (raw number) of each structure produced, by group

Adverb Condition	Structure produced	Group		
		L1 French *(n=17)*	L2 French *(n=27)*	L3 French *(n=30)*
Wh-Object question				
	Adv-S-V-X	00.00 (00)	00.00 (00)	00.66 (01)
	S-V-X-Adv	08.22 (07)	23.70 (32)	06.00 (09)
	*S-Adv-V-X	00.00 (00)	20.00 (27)	10.00 (15)
	S-V-Adv-X	91.78 (78)	56.30 (76)	83.34 (125)
When-question				
	Adv-S-V-X	00.00 (00)	00.00 (00)	00.66 (01)
	S-V-X-Adv	05.88 (05)	39.26 (53)	08.00 (12)
	*S-Adv-V-X	00.00 (00)	27.40 (37)	07.34 (11)
	S-V-Adv-X	94.12 (80)	33.34 (45)	84.00 (126)
Yes-no question				
	Adv-S-V-X	00.00 (00)	00.00 (00)	01.34 (02)
	S-V-X-Adv	04.70 (04)	37.03 (50)	10.00 (15)
	*S-Adv-V-X	00.00 (00)	17.77 (24)	06.66 (10)
	S-V-Adv-X	95.30 (81)	45.20 (61)	82.00 (123)

The responses of the participants included four structures: Adv-S-V-X, S-V-X-Adv, *S-Adv-V-X and S-V-Adv-X. For all three adverb conditions, the French native speakers predominantly used the target S-V-Adv-X order (>91% use), as expected. Importantly, they never used the ungrammatical order. Instead, in the remaining <9% of cases, they used the grammatical alternative of placing the adverb at the end of the sentence. The L3 group also has a relatively higher rate of the target S-V-Adv-X order, at ≥82%, whereas the L2 group's use of that structure is much lower, ranging from 33.34%–56.30%. The non-native groups differ from the native groups as the non-native groups demonstrate some use of the ungrammatical S-Adv-V-X structure. However, the L3 group has a relatively low rate of use of the ungrammatical structure (<11% use) whereas the use of that structure by the L2 group goes as high as 27%.

The L3 pattern is fairly uniform, regardless of the question structure, with over 80% use of the target structure, and the remaining responses roughly divided between the ungrammatical structure and the utterance-final-adverb structure. However, the L2 group seems to show a slightly different response pattern for each question structure with less than 57% of the target structure and over 23% use of the utterance-final-adverb structure. For Wh-object question condition, the L2 group used the target S-V-Adv-X order relatively less frequently (56.30%) than the L3 group (83.34%). Also, the L2 group has a higher percentage of the ungrammatical S-Adv-V-X order (20%) in their production than the L3 group (10%).

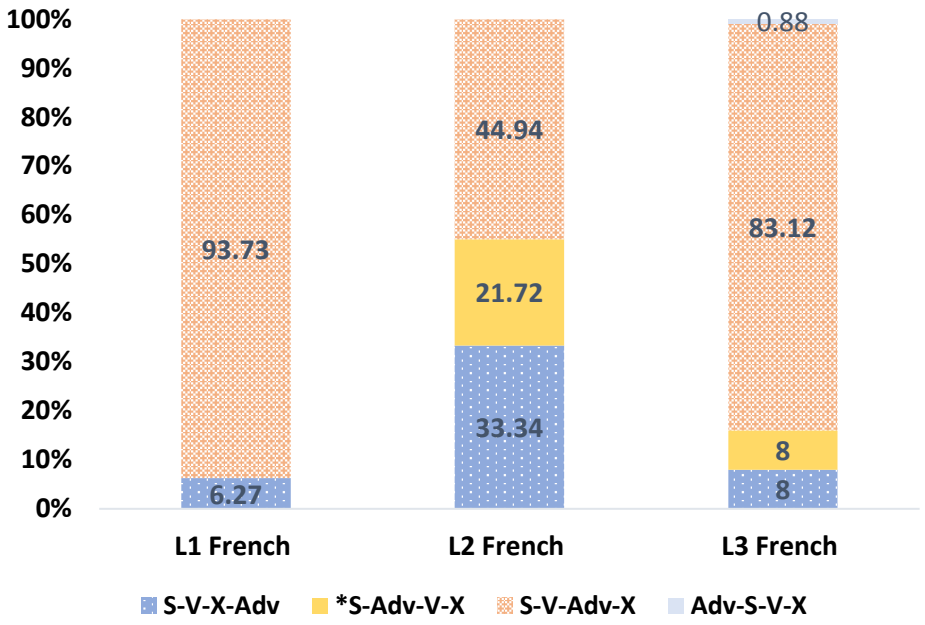
Turning to the When-question condition, again, the L3 group has a much higher use of the grammatical order (84%) than the L2 group (33.34%). The results also show that the L2 group used the ungrammatical order (27.40%) much more frequently than the L3 group (7.34%).

For the Yes-no question condition, the L2 group has 17.77% use of the ungrammatical S-Adv-V-X order whereas in the other two conditions they used the ungrammatical structure more frequently (≥20%). The results for the L3 group are comparable to the other two conditions. Compared to the L2 group, the L3 group has a higher use of the grammatical order (82%) and lower use of the ungrammatical counterpart order (6.66%).

Figure 15 presents the results for the three adverb conditions collapsed together. It becomes all clear that the L3 group's responses are more similar to the native-speaker group than the L2 group because the L3 group has over 80% use of S-V-Adv-X order and only 8% use of *S-Adv-V-X order. In contrast to the L3 group, the L2 group has only 44. 94% use of S-V-Adv-X order and a higher use of *S-Adv-V-X order (21.72%). The non-native groups used the ungrammatical alternative

structure, whereas the French native speakers did not use that structure. The L2 group used this structure much more frequently (21.72%) than the L3 group (8%).

Figure 15. Percentage of each structure produced, by group for all three adverb conditions



Let us turn to the inferential statistics. Based on the descriptive statistics, it is clear that the L2 group demonstrates a different response pattern from the L3 group. However, it is not clear whether this difference is statistically significant. Following Levshina (2015), I analysed the non-native data using chi-square analysis to determine whether the two groups are statistically different from each other with regards to the response patterns.

It is only appropriate to use a chi-square test only if the data passes the assumptions given in (90) and (91) (Conover, 1999, pp. 204-205). However, the production task data violates assumption (91) because the observations are not all independent of each other (as each participant contributes several responses to each condition, within the same task).

However, I decided to go ahead with the chi-square analysis because it was not possible to find an alternative that would provide readily interpretable results. Therefore, using chi-square was the "next best" alternative.

(90) The sample is randomly selected from the population of interest and the observations are independent.

(91) Every observation can be classified into exactly one category according to the criterion represented by each variable.

As noted previously, in the production task, the participants used four structures (Adv-S-V-X, S-V-X-Adv, *S-Adv-V-X and S-V-Adv-X) in their responses. In all three adverb conditions, Adv-S-V-X structure was the least preferred structure at less than 2% use. Therefore, it was excluded from the analysis as it has a cell value less than 5 (Levshina, 2015). When the number of observations in a cell is less than 5, a chi-square analysis does not run. Therefore, this structure (Adv-S-V-X) was excluded for practical reasons.

. Following Levshina (2015), a chi-square analysis was run on the three remaining structures. To compare the response patterns of the non-native groups, the number of times each structure (S-V-X-Adv *S-Adv-V-X S-V-Adv-X) was produced by the non-native speakers was arranged in a contingency table as in (28). The chi-square result is statistically significant ($\chi^2(2) = 140.90$, $p \leq .001$). This suggests that there is a significant association between the response patterns and the Group variable. In other words, the L2 response patterns are different from the L3 pattern across the three adverb conditions. Moreover, the statistically significant chi-square result could also be due to the large proportion of target S-V-Adv-X structures in the L3 data.

Table 28. Number of times each structure is produced by group

	S-V-X-Adv	*S-Adv-V-X	S-V-Adv-X
L2	135	88	186
L3	36	36	374

To determine whether the non-native speakers change their response pattern as a function of the question types[8]. I analyse the L3 and L2 data separately. To analyse the data sets separately, the number of times each structure was produced by the L2 and L3 speakers was arranged in contingency tables (Tables 29 and 30).

Table 29. Number of times each structure is produced by L3 group

	S-V-X-Adv	*S-Adv-V-X	S-V-Adv-X
Wh-object question	09	15	125
When-question	12	11	126
Yes-no question	15	10	123

Table 30. Number of times each structure is produced by L2 group

	S-V-X-Adv	*S-Adv-V-X	S-V-Adv-X
Wh-object question	32	27	76
When-question	53	37	45
Yes-no question	50	24	61

When the L3 data is considered separately, the chi-square result does not reach statistical significance ($\chi^2(1) = 2.70$, $p = .60$). This suggests that there is no significant association between the response patterns and the question type. However, for the L2 group, the chi-square result is statistically significant ($\chi^2(4) = 16.81$, $p \leq .001$). This suggests that unlike the L2 speakers, the L3 speakers do not change their response pattern as a function of the question type.

Following Levshina (2015), I calculated the number of times each structure was expected to produce by the L2 and L3 groups (Tables 31 and 32), and then I compared the number of times the three structures used by the two non-native groups

[8] There are three questions types: Wh-object question, When-question and Yes-no question

(Tables 29 and 30) with the number of times they were expected to use each structure (Tables 31 and 32). With regards to the native speakers, the non-native speakers used the grammatical adverb placement over 93% of the time, with the remaining utterances being the grammatical alternative S-V-X-Adv structure. However, unlike, the native speakers, the non-native speaker used the ungrammatical adverb placement to a certain extend (over 8%). Therefore, the response pattern of the native speakers looks different from the response pattern of the L2 and L3 speakers. Further, as we noted earlier, in contrast to the L2 speakers, the response pattern of the L3 group is relatively more similar to the response pattern of the native speakers. However, as the present study does not make explicit predictions about the difference between the native and non-native speakers, it was decided not to compare the native speakers with the non-native speakers. Comparing L2 and L3 response patterns allow us to determine whether the high proportion of the target structure (S-V-X-Adv) in L3 data has contributed to the statistically significant chi-square result (Levshina, 2015, p. 218). The L3 data reported in Tables 29 and 31 show that the number of times that the L3 group used the target structure does not deviate significantly from the number of times they were expected to produce it. This suggests that the target structure is not underrepresented in the L3 data. Importantly, Table 31 shows that the ungrammatical structure is not overrepresented in the L3 data. In other words, the L3 speakers have not overused that structure. However, the L2 data show that in the When-question condition, the number of times the L2 speakers used S-V-Adv-X structure deviates from the number of times they expected to use it (Table 32). This means that the target structure is clearly underrepresented in the L2 data. Therefore, the results suggest that the L3 response pattern could be more target-like than the L2 response pattern.

Moreover, this difference contributes to the statistically significant chi-square result in the group comparison.

Table 31. Number of times each structure is expected to be produce by L3 group

	S-V-X-Adv	*S-Adv-V-X	S-V-Adv-X
Wh-object question	12.02	12.02	123
When-question	12.02	12.02	123
Yes-no question	11.94	11.94	123

Table 32. Number of times each structure is expected to be produced by L2 group

	S-V-X-Adv	*S-Adv-V-X	S-V-Adv-X
Wh-object question	45.11	29.40	60.00
When-question	45.11	29.40	60,00
Yes-no question	44.77	29.18	60.03

6.2.2 English test instruments

The English test instruments consisted of two tasks: an audio AJT and a production task. The results of the audio AJT is reported first, before turning to the production task results. The next section provides the results related to the three adverb conditions: Wh-object question, When-question and Yes-no question. The results for object pronouns are reported in Section 6.3.2.2.

6.2.2.1 The acceptability judgement task (English version)

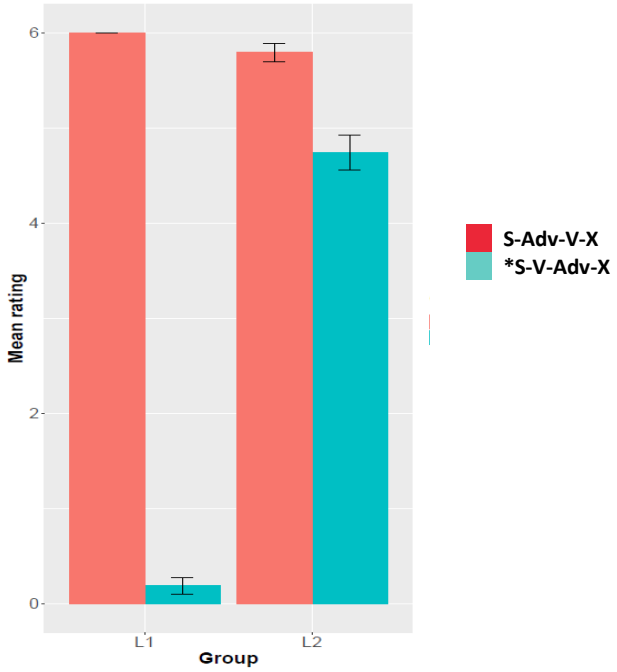
The descriptive statistics for all three adverb conditions are reported in Table 33. Figures 16-18 provide a visual illustration of each adverb condition separately.

Table 33. English AJT mean ratings on adverb conditions (scale = 0-6)

	Structure	L1 English		L 2 English	
		Mean	SD	Mean	SD
Wh-Object question	S-Adv-V-X	6.00	0.00	5.79	0.53
	*S-V-Adv-X	0.18	0.39	4.74	1.02
When-question	S-Adv-V-X	4.80	2.41	5.62	0.68
	*S-V-Adv-X	1.22	2.40	4.70	0.95
Yes-no question	S-Adv-V-X	4.81	2.39	5.25	0.85
	*S-V-Adv-X	1.28	2..41	4.84	0.86

Let us first establish the native pattern of judgements in the Wh-object question condition. The English native speakers strongly distinguish between the grammatical and ungrammatical structures by attributing a very high mean rating to the grammatical structure and a very low mean rating to the ungrammatical structure. The L1-Sinhala–L2-English speakers look (hereafter L2 English speakers) very different from the English native speakers. The L2 English speakers do not differentiate greatly between the grammatical and ungrammatical structures with a mean rating of 5.79 on the grammatical structure and a lower mean rating (4.74) on the ungrammatical structure. Nonetheless, the confidence interval bars do not overlap within the L2 English speakers and this demonstrates that, like the native speakers, the non-native speakers differentiate the grammatical structure from the ungrammatical structure (see figure 16).

Figure 16. English AJT mean ratings on Wh-object question condition with 95% Cls



Let us now consider the results for the When-question condition. As discussed in Chapter 5, the English AJT used English versions of the tokens used in the French audio AJT. When the test items were translated into English, one of the sentence pairs comprised two grammatical sentences, rather than one grammatical and one ungrammatical sentence. There are given in (92-93). Sentence (92) would be ungrammatical in S-V-Adv-O structure but grammatical in S-V-Adv-PP structure because postverbal adverbs are allowed after prepositional phrases in English.

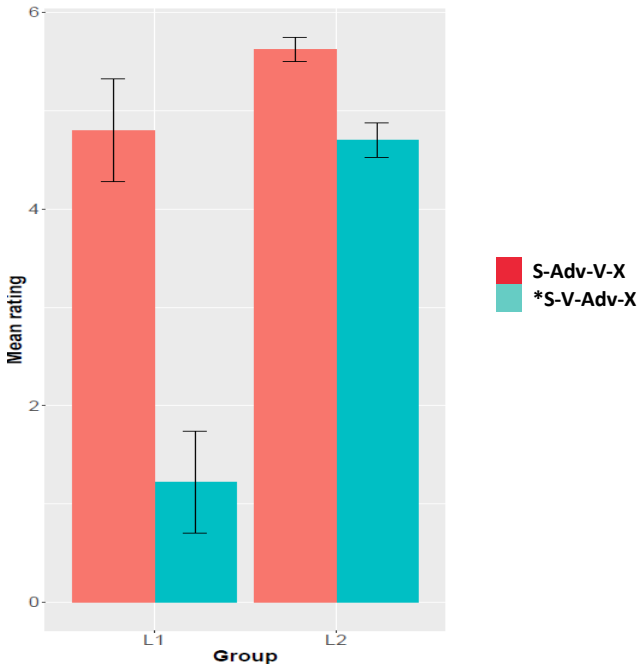
This item (Sentence 92) appears in the When-question condition. The results for this test item are considered first. Although this test item has a grammatical structure in English, the English native group considered this structure as a dispreferred word order. Their mean rating for this test item is close to zero (0.06) whereas the L2 English speakers attributed a mean rating of 4.25 to this test item. However, it was decided to discard this test item from the results reported in Table 33 and Figure 17 as the English AJT also tested the same token with a preverbal adverb as in (93). The following discussion is based on mean ratings reported in Table 33 and Figure 17.

(92) She eats regularly in the canteen. (S-V-Adv-X[9])

(93) She regularly eats in the canteen (S-Adv-V-X)

Figure 17 shows a similar picture to Figure 16. This suggests that the results for the two groups in the When-question condition are comparable to the previous condition. The native pattern of judgments shows that the grammatical structure receives a very high acceptance whereas the ungrammatical structure receives much lower acceptance. Figure 17 shows that L2 English speakers make a distinction between the two structures. However, compared to the English native group, the L2 differentiation between the grammatical and ungrammatical structure is relatively smaller.

Figure 17. English AJT mean ratings on When-question condition with 95% Cls



Looking at the native pattern of judgements in the Yes-no question condition, again, it very clear that the English native speakers strongly differentiate the grammatical and ungrammatical structures (see Figure 18). They attribute a mean

[9] Recall that X stands for the element following V, before inclusion of an adverb. Thus, here it stands for PP.

rating close to 5 to the grammatical sequence and a mean rating close to 1 to the ungrammatical sequence. The non-native pattern of judgements looks different from the native pattern. The non-native speakers do not differentiate greatly between the two structures. S-Adv-V-X structures receive a mean rating of 5.25 whereas *S-V-Adv-X structures receive a mean rating of 4.84. However, a closer inspection of confidence interval bars in Figure 18 suggests that the L2 English speakers, nonetheless, differentiate the grammatical and ungrammatical structures.

Figure 18. English AJT mean ratings on Yes-no question condition with 95% Cls

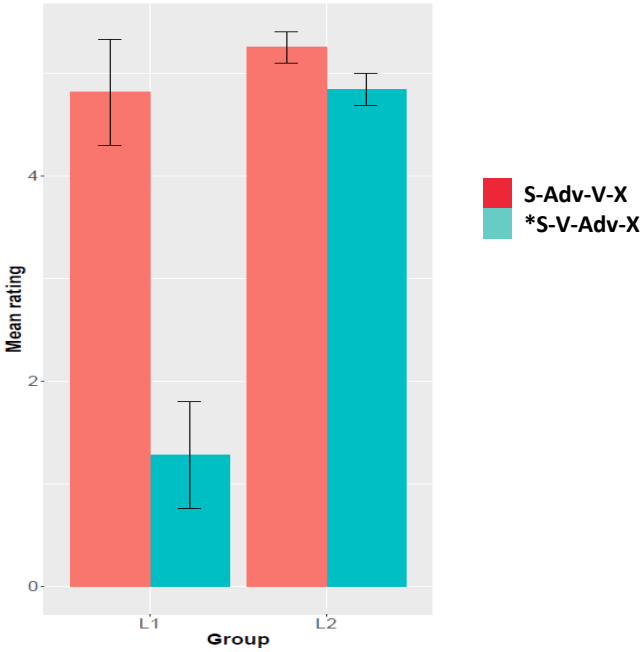


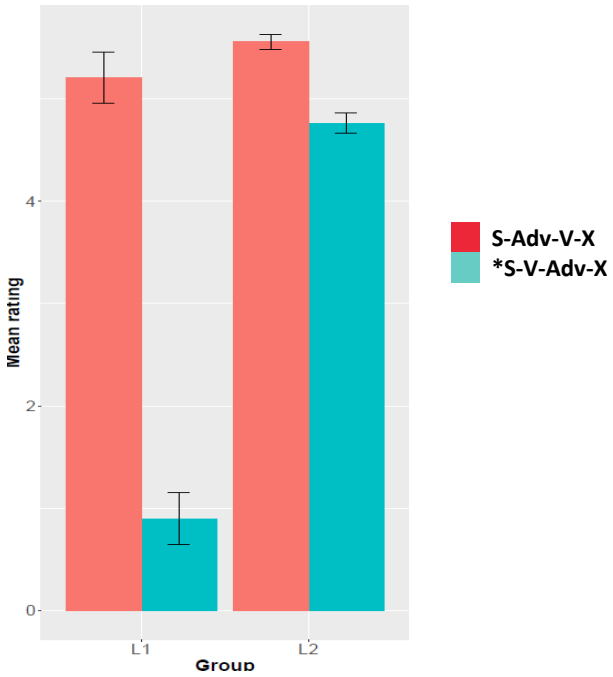
Table 34 gives the results for the three adverb conditions collapsed together. Figure 19 provides a visual illustration of the data given in Table 34. As expected, the English native speakers greatly differentiate the grammatical structure from the ungrammatical structure across the three adverb conditions. Figure 19 clearly indicates that the two groups are different from each other. The non-native pattern of judgements shows that the ungrammatical structure receives a mean rating of 4.76 whereas the grammatical counterpart receives a mean rating of 5.55. Therefore, the

results show that the L2 English speakers do not make a strong distinction as the English native speakers.

Table 34. English AJT mean ratings on S-Adv-V-X versus *S-V-Adv-X (scale = 0-6)

Group	Word order	Mean	SD
L1 English	S-Adv-V-X	5.20	2.03
	*S-V-Adv-X	0.89	2.03
L2 English	S-Adv-V-X	5.55	0.73
	*S-V-Adv-X	4.76	0.95

Figure 19. English AJT mean ratings on S-Adv-V-X versus *S-V-Adv-X with 95% Cls



The English AJT mean ratings were transformed to z-scores for analysis. However, after converting the mean rating to z-scores, still, the data was not normally distributed. Therefore, it is not possible to report any inferential statistics on English AJT data. However, the descriptive statistics clearly suggest that the L2 English speakers are uncontestably different from the English native speakers. They accept the ungrammatical S-V-Adv-X across the three adverb conditions.

Analysing the adverb placement in English by the L1-Sinhala–L2-English speakers, we find that the L2 English speakers distinguish between the grammatical

and ungrammatical adverb placement in the three adverb conditions. However, this differentiation is relatively small. The L2 pattern of judgements shows that the grammatical adverb placement always receives mean ratings above the midpoint of the scale in the three conditions and when the three conditions are collapsed, the L2 differentiation between S-V-Adv-X and *S-V-Adv-X structures is not robust either. The L2 speakers attributed a high mean rating to the ungrammatical structure. This could be mainly due to L1 transfer as both S-V-Adv-X and *S-V-Adv-X structures are grammatical in Sinhala. The next section reports the results for adverb placement in the production task.

6.2.2.2 Production task (English version)

The production task aimed to elicit oral production of adverbs and object pronouns in English. The production task included the three categories of adverb condition: Wh-object question, When- question and Yes-no question. As explained in Chapter 5, due to time constraints, six of the thirty L2 speakers were unable to complete the English production task. Table 35 gives the results for all three adverb conditions.

Table 35. Percentage (raw number) of each structure produced in the English version of the production task, by group

Adverb Condition	Structure produced	Group	
		L1 English *(n=17)*	L2 English *(n=24)*
Wh-Object question			
	Adv-S-V-X	02.35 (02)	08.34 (10)
	S-V-X-Adv	04.71 (04)	07.50 (09)
	S-Adv-V-X	92.94 (79)	75.00 (90)
	*S-V-Adv-X	00.00 (00)	09.16 (11)
When-question			
	Adv-S-V-X	00.00 (00)	08.33 (06)
	S-V-O-Adv	00.00 (00)	08.33 (06)
	S-Adv-V-X	100.00 (51)	69.44 (50)
	*S-V-Adv-X	00.00 (00)	13.90 (10)
Yes-no question			
	Adv-S-V-X	00.00 (00)	07.50 (09)
	S-V-O-Adv	00.00 (00)	00.83 (01)
	S-Adv-V-X	100.00 (85)	80.00 (96)
	*S-V-Adv-X	00.00 (00)	11.67 (14)

The English native speakers did not use four structures (as they did not use the ungrammatical structure); only the L2 English speakers did. As discussed in Chapter 5, the English production task used English versions of the test items used in the French production task. Two test items (see 94 and 95) presented to the participants in the English version, require answers which have a structure that involves an intransitive verb followed by a prepositional phrase. With intransitive verbs, responses with either postverbal adverbs as in (96)[10] or with preverbal adverbs as in (97) are grammatical in principle. Therefore, it is worth considering the results for these two items separately to find out which of the two structures is preferred by the participants. Although S-V-Adv-X structure is grammatical in principle, in these

[10] as an adverb can appear between a verb and a prepositional phrase in English.

two cases, the English native speakers never used that structure in their responses. Unlike the native group, the non-native group has 18.75 % use of S-V-Adv-X structure. However, the non-native group still has a high rate of use of S-Adv-V-X order, at 70.83%. It was decided nonetheless to discard these test items from the results reported in Table 35 and Figure 20 as the results of these test items do not help us to understand whether adverb placement is established in L2 English. The following discussion is based on the results reported in Table 35 and Figure 20.

(94)

Francis likes to go to the cinema.

regularly

5) When does he go to the cinema?

(95) Simon loves to eat in the cafeteria.

frequently

7) When does he eat in the cafeteria?

(96) He goes regularly to the cinema. (S-V-Adv-X)

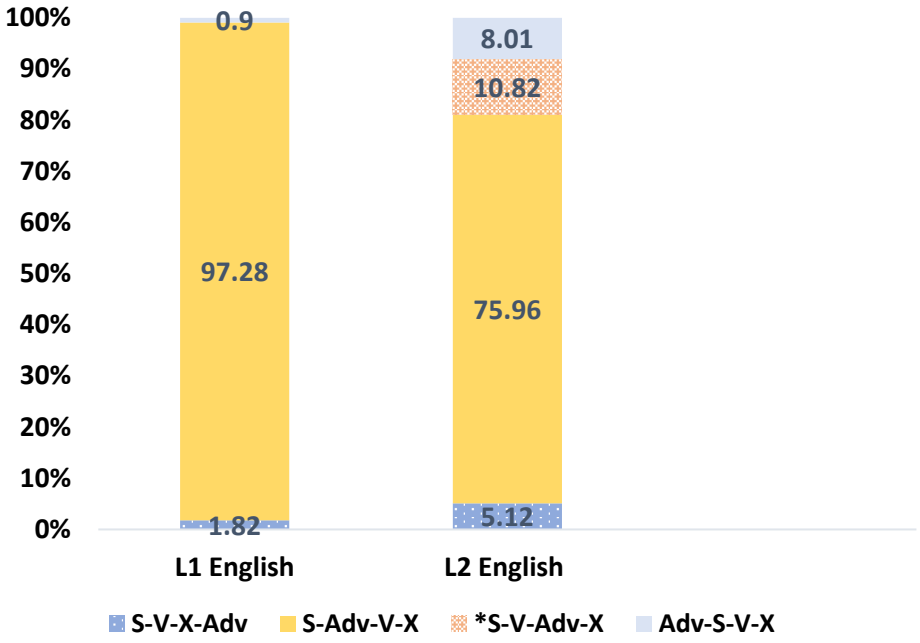
(97) He regularly goes to the cinema. (S-Adv-V-X)

As expected, for all adverb conditions, the English native speakers predominantly used the grammatical S-Adv-V-X structure (>92%). Most importantly, they never used ungrammatical adverb placement in their responses. Instead, they used the grammatical alternative structures: Adv-S-V-X and S-V-X-Adv. The L2 English speakers also predominantly used the grammatical S-Adv-V-X structure (>69%) and

they have less than 14% use of *S-V-Adv-X structure for all three adverb conditions. Moreover, the ungrammatical structure was their second choice of preference. The L2 English speakers used the grammatical alternative structures (Adv-S-V-X and S-V-X-Adv) less frequently than the ungrammatical structure.

Figure 20 presents the results for the three adverb conditions collapsed together. With more than 97% use of S-Adv-V-X order, the English native speakers showed a strong preference for the latter structure. Like the English native speakers, the L2 English speakers predominantly used target order (75.96%). They used alternative structures more frequently than the English native speakers. However, unlike the English native group, the L2 English speakers used ungrammatical adverb placement (10.82%) in their responses.

Figure 20. Percentage of each structure produced in the English version of the production task, by group



As noted previously, the native and non-native speakers overwhelmingly used S-Adv-V-X structure in their responses. However, the descriptive statistics clearly show that the two groups are different. The native speakers used the grammatical adverb placement over 97% of the time, with the remaining utterances being grammatical alternatives. However, the non-native speakers' use of the grammatical adverb placement was lower, at 75.96%. Further, in contrast to the native speakers, the non-native groups also used the ungrammatical adverb placement, which is just over 10% of the total. This clearly shows that the native response pattern is different from the non-native response pattern.

Turning to inferential statistics, I decided not to compare the native response pattern with the non-native response pattern because the two groups clearly had different response patterns. Therefore, the statistical comparison is unnecessary, and

the addition of an unnecessary variable to a statistical model reduces the power of the model (Levshina, 2015).

However, I ran chi-square analysis on the non-native data to determine whether their output structure changes as a function of the question type. S-V-X-Adv structure was excluded from the analysis as it has a cell value less than 5. When the number of observations in a cell is less than 5, a chi-square analysis does not run. Therefore, this structure was excluded for practical reasons (Levshina, 2015). All the other structures were included in the analysis. Following Levshina, the number of times each structure is produced by L2 speakers was arranged in a contingency table as in Table 36. The chi-square result does not reach statistical significance ($\chi^2(2)=1.31$, p .85). This suggests that there is no significant association between their response pattern and the question type. In other words, the L2 English speakers do not change their response pattern in relation to the three adverb conditions.

Table 36. Number of times each structure is produced by the L2 English group.

	Adv-S-V-X	*S-Adv-V-X	S-V-Adv-X
Wh-object question	10	90	11
When-question	06	50	10
Yes-no question	09	96	14

Following Levshina (2015), I also calculated the number of times each structure is expected to be produced, according to chi-square logic, by the L2 English speakers (Table 37). Tables 36 and 37 show that the number of times that the L2 English speakers used the target structure (S-Adv-V-X) does not deviate significantly from the number of times they were expected to produce it. This shows that the target structure is not underrepresented in the L2 data. Most importantly, the number of times the L2 English speakers used the ungrammatical structure (*S-V-Adv-X) does

not exceed the number of times they were expected to produce it. This shows that they have not overused this structure.

Table 37. Number of times each structure is expected to be produced by the L2 English group

	Adverb condition	Structure produced	Frequency
Expected Frequency			
	Wh-object question	Adv-S-V-X	09.37
		S-Adv-V-X	88.50
		*S-V-Adv-X	13.12
	When-question	Adv-S-V-X	05.57
		S-Adv-V-X	52.62
		*S-V-Adv-X	07.80
	Yes-no question	Adv-S-V-X	10.05
		S-Adv-V-X	94.87
		*S-V-Adv-X	14.00

6.3 Object clitics and object pronouns across tasks

6.3.1 French test instruments

Knowledge of object clitics by the L2 and L3 speakers was tested via audio and written AJTs and a production task. To determine whether there is an L1-transfer effect in L3 acquisition of object clitics, the test instruments tested the grammatical and ungrammatical structures: S-Cl-V and *S-ø-V. This section first outlines the results of the AJTs before turning to the production task results.

6.3.1.1 Audio acceptability judgement task

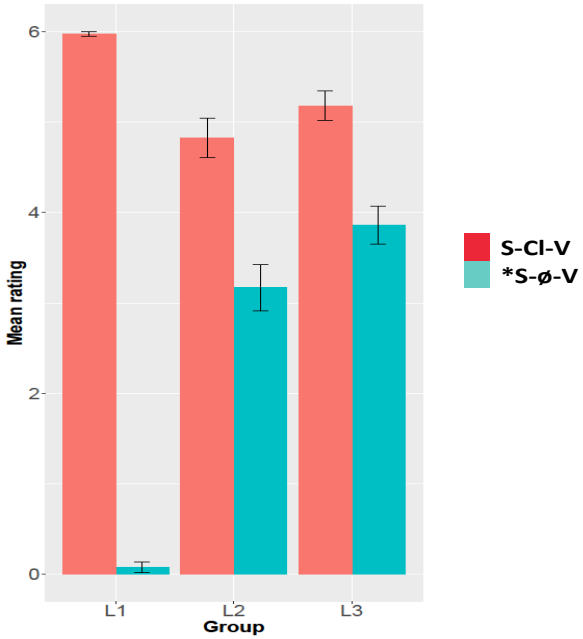
Table 38 presents the descriptive statistics for object clitics in the audio AJT. The data is further illustrated in Figure 21. As expected, the French native speakers differentiate very strongly between the grammatical and ungrammatical structures, with a mean of close to the maximum of 6 for the grammatical word order and a mean of close to the minimum, zero, for the ungrammatical word order. The non-native speakers attributed a mean rating close to five (4.82-5.18) to the grammatical structure whereas the ungrammatical structure received mean ratings of 3.17 and 3.86 respectively.

Moreover, the confidence interval bars do not overlap within the non-native speakers. This suggests that the L2 and L3 speakers distinguish between the grammatical and ungrammatical structures. However, Figure 21 shows that the L3 group looks different from the L3 speakers. This is due to the acceptance of ungrammatical object clitic omission by the L3 group.

Table 38. AJT mean ratings on object clitic condition (scale =0-6)

	Structure	L1 French		L2 French		L3 French	
		Mean	SD	Mean	SD	Mean	SD
Audio AJT							
	S-Cl-V	5.98	0.15	4.82	1.80	5.18	1.43
	***S-ø-V**	0.08	0.39	3.17	2.15	3.86	1.83
Written AJT							
	S-Cl-V	6.00	0.00	5.31	1.10	5.34	1.47
	***S-ø-V**	0.01	0.10	2.81	1.96	4.03	1.95

Figure 21. Audio AJT mean ratings on object clitic condition 95% CIs

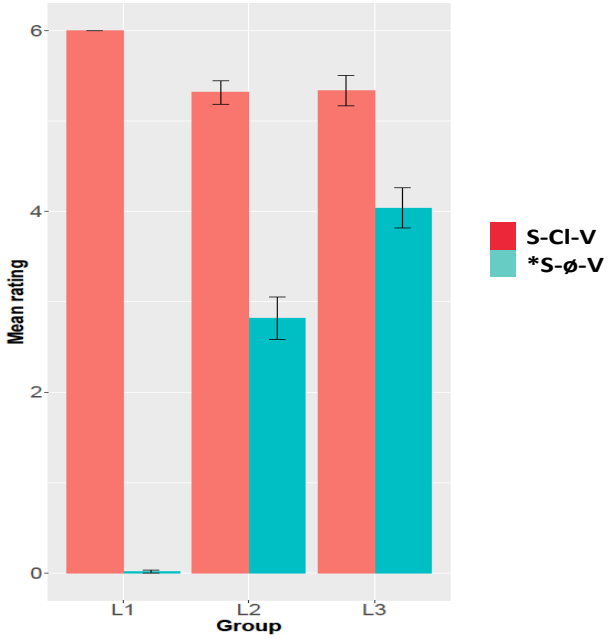


6.3.1.2 Written acceptability judgement task

The descriptive statistics for object clitics in the written AJT are reported in Table 38 and Figure 22. The native pattern of judgements in the written AJT is comparable to the audio AJT. The French native group very strongly accepts the

grammatical structure and rejects the ungrammatical object clitic omission in the written AJT. The non-native judgements in the written AJT are different from that of the audio AJT. In contrast to the audio AJT, The L2 and L3 differentiation between the grammatical and ungrammatical structures is bigger in the written AJT. Moreover, the non-overlapping confidence interval bars within the non-native speakers suggest that they make a distinction between the grammatical and ungrammatical structures in the written AJT.

Figure 22. Written AJT mean ratings on object clitic condition 95% Cls



Let us turn to the inferential statistics. The z-scores from both tasks together were analysed using linear mixed effects models in in R. I started with a minimal model (model 1) that contains all the fixed effects task (audio v. written), grammaticality (grammatical v. ungrammatical) and group (L3 v. L2). And then, I increased the model by adding random intercepts for participants and items and then random slopes for grammaticality was also attempted (Model 2). Statistical comparison of Models 1 and 2 using ANOVA yield a lower Akaike Information Criterion (AIC) for Model 2 (AIC 6185.0) than Model 1 (6209.9). This suggests that

Model 2 provides a better fit to the data than Model 1. On the basis of the lower AIC, I focus on Model 2. A third model (Model 3) was also considered to determine where there is any effect of proficiency. Model 3, which included the proficiency test scores was attempted. However, adding proficiency scores did not decrease the AIC (6211.6) or significantly improve the model fit (χ2(1) 0.23, p = .63). Therefore, I focus on Model 2 which is reported in Table 39. Table 39 shows that there is a significant main effect of both Task and Grammaticality and a significant interaction between Task and Grammaticality. However, there is no significant main effect of Group or an interaction between Group and Grammaticality.

Table 39. Linear mixed effects model estimates of z-scores. The random effects structure included the by-participant and by-item random intercepts.

	Estimate	***SE***	***t***
(Intercept)	−0.361	0.090	−4.008
task	0.333	0.098	**3.378**
grammaticality	0.838	0.119	**7.038**
group	−0.135	0.109	−1.239
task × grammaticality	−0.846	0.140	**−6.030**
task × group	−0.112	0.107	1.054
grammaticality × group	−0.104	0.141	−0.738
task × grammaticality × group	−0.208	0.151	1.376

In summary, the native pattern of judgements from the audio AJT is repeated in the written AJT. The native speakers clearly reject ungrammatical object omission in French. Turning to the non-native speakers, the significant main effect of Grammaticality obtained from the linear mixed effects model confirms that, overall, the non-native groups differentiated between the grammatical and ungrammatical structures across the two tasks. There was also a significant effect of Task, which is likely to be due to the fact that, in general, for both groups, the ratings on each structure are higher in the written task than in the audio task. The L2 group's mean

rating of 2.81 on the *S-ø-V structure in the written AJT is an exception: this rating is lower than on the same structure in the audio AJT. However, the variance in the responses in this condition in both tasks was high (as seen from the SDs in Table 38), and this high level of variance is likely to be the reason why the effect of Task is significant, despite the exception in the L2 results. The remaining significant outcome in the mixed effects model is the interaction of Task and Grammaticality. This is likely to arise because the difference between the grammatical and ungrammatical conditions is, overall more extreme in the written AJT than in the audio AJT. Descriptively, it appears that this difference applies more to the L2 group's responses than to the L3 group's responses. However, the Group variable is not involved in the significant main effects or interactions, which means that, statistically, there is no difference between the L2 and L3 groups on the object clitic structures in the AJTs.

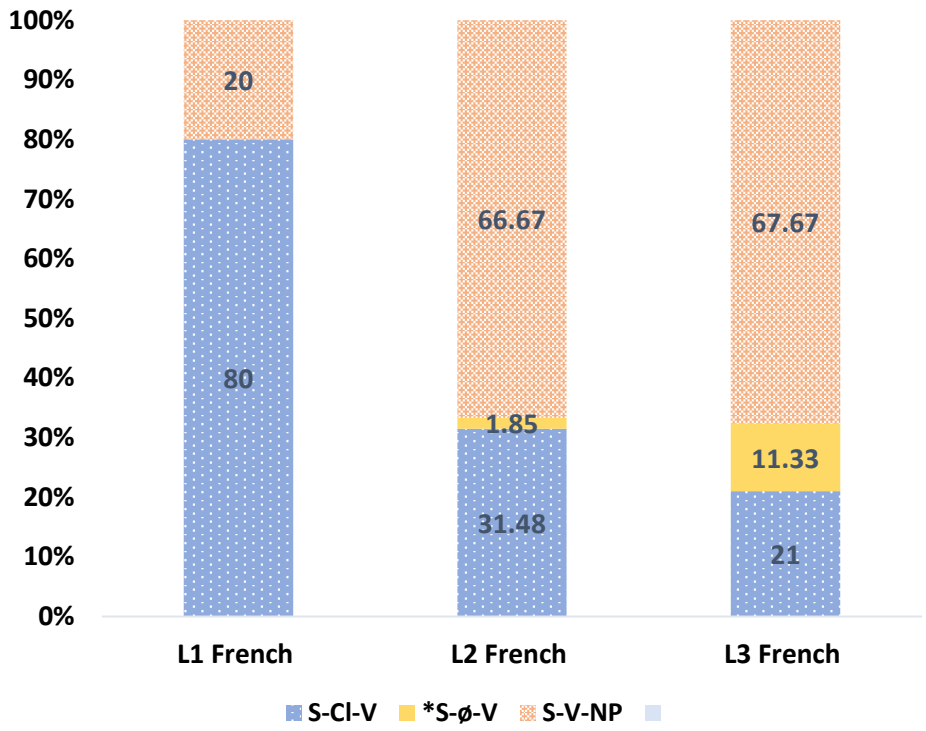
6.3.1.3 Production task

The results for object clitics are shown in Table 40. Figure 23 provides a visual illustration of the data in Table 40. The responses of the participants included three structures: S-Cl-V, *S-ø-V and S-V-NP.

Table 40. Percentage (raw number) of each structure produced, by group

Structure produced	Group		
	L1 French (*n=17)*	L2 French (*n=27)*	L3 French *(n=30)*
S-Cl-V	80.00 (136)	31.48 (85)	21.00 (63)
***S-ø-V**	00.00 (00)	01.85 (5)	11.33 (34)
S-V-NP	20.00 (34)	66.67 (180)	67. 67 (203)

Figure 23. Percentage of each structure produced, by group



As expected, the French native group predominantly used preverbal object clitic structures (80%). As expected, they never used object clitic omitted clitic omission in their responses. With regards to the non-native groups, they have at least 66% of S-V-NP structure, which is their preferred structure. In other words, they prefer to give full NP and avoid pronouns. The L2 group has more than 31% of S-Cl-V structure, whereas the L3 group's use of that structure is lower (21%). The two non-native groups differ from each other as the L3 group used object clitic omission more frequently than the L2 group.

Let us turn to the inferential statistics. To compare the response patterns of the two non-native groups, the number of times each structure is produced by the L2 and L3 groups was arranged in a in a contingency table as in Table 41 and then

a chi-square analysis was conducted on the three response types produced by the two non-native groups. The result is statistically significant ($\chi 2$ (2) =24.71, p ≤.001), which suggests that there is a significant association between the response patterns of the non-native speakers and the Group variable. In other words, L2 response pattern is different from the L3 speakers. The descriptive statistics show that unlike the L2 data, the L3 data contains a relatively higher proportion of *S-ø-V structure. However, the number of times other structures are relatively similar in the two groups (see Table 41). Therefore, the statistically significant chi-square result is due to the use of *S-ø-V structure in the L3 data.

Table 41. Number of times each structure is produced by group

	S-Cl-V	*S-ø-V	S-V-NP
L2	85	05	180
L3	63	34	203

6.3.2 English test instruments

Knowledge of object pronouns in L2 English was tested via an audio AJT and a production task. To determine whether there is an L1-transfer effect in L2 acquisition of object pronouns, the experimental tasks tested the grammatical and ungrammatical structures: S-V-ObjPro and *S-V- ø. The next section outlines the results of the AJT and Section 6.3.2.2 reports the production task results.

6.3.2.1 Acceptability judgement task (English version)

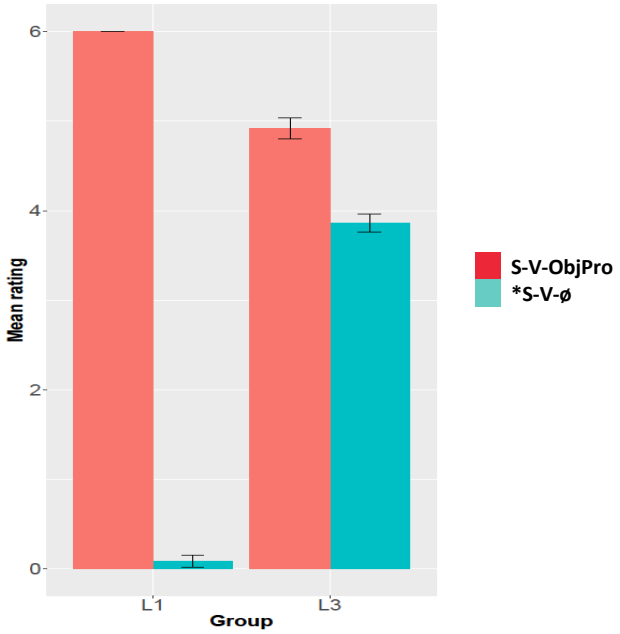
The descriptive statistics of the AJT are presented in Table 42 and the data is further illustrated in Figure 24.

Table 42. English AJT mean ratings on object pronoun condition (scale =0-6)

Structure	L1 English		L 2 English	
	Mean	SD	Mean	SD
S-V-ObjPro	6.00	0.00	4.92	0.91
***S-V-ø**	0.08	0.44	3.86	0.78

As expected, the English native group differentiates greatly between S-V-ObjPro and *S-V-ø structures with a mean of close to the maximum of 6 for the grammatical structure and a mean of close to the minimum, zero, for the ungrammatical structure. However, differently from the native speakers, the L2 English speakers do not make a strong distinction between grammatical S-V-ObjPro structures and ungrammatical S-V-ø structures. Nonetheless, the confidence interval bars do not overlap within the L2 English speakers. This indicates that this difference is significant.

Figure 24. English Audio AJT mean ratings on object pronouns condition 95% CIs



The mean ratings on object pronouns were transformed to z-scores for analysis. However, even after converting the mean rating to z-scores, still, the data was not normally distributed. Therefore, the inferential statistics are not reported on the object pronouns. However, based on the descriptive statistics alone, we can conclude that the English native speakers are different from the L2 English speakers. Moreover, the L1 Sinhala speakers clearly accepts ungrammatical object pronoun omission in English

and French. This suggest that this property is not acquired by the L3 speakers in both L2 English and L3 French. I will discuss this point further later in the thesis.

6.3.2.2 Production task (English version)

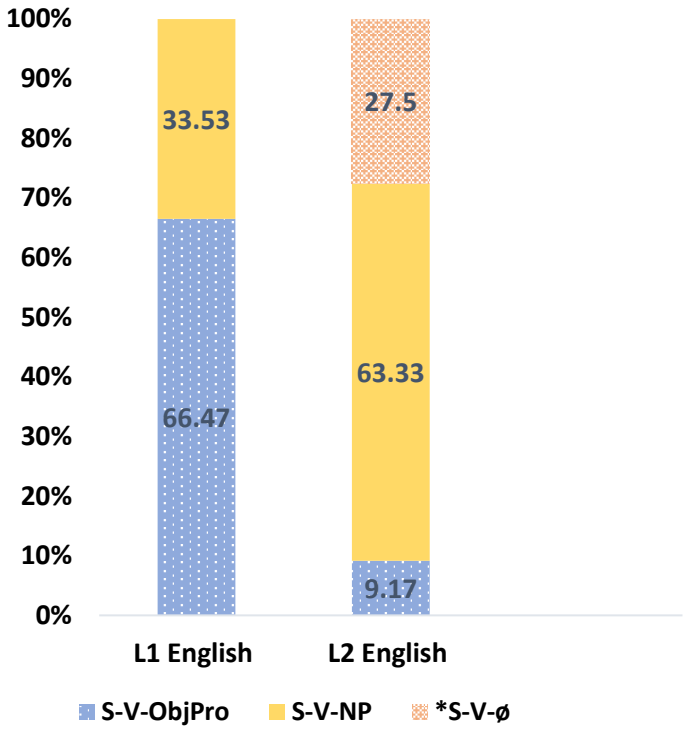
The results for object pronouns are shown in Table 43. Figure 25 further illustrates the in Table 43.

Table 43. Percentage (raw number) of each structure produced in the English version of the production task, by group

Structure produced	**Group**	
	L1 English (*n=17*)	**L2 English (*n=24*)**
S-V-ObjPro	66.47 (113)	09.17 (22)
S-V-NP	33. 53 (57)	63.33 (152)
***S-V-ø**	00,00 (00)	27.50 (66)

The responses of the participants included three structures: S-V-ObjPro, S-V-NP and *S-V-ø. The English native group has 66.47% use of object pronoun structures, suggesting their strong preference for that structure. The non-native group looks very different from the English native group. The L2 English speakers have only 9.17% use of S-V-ObjPro structures in their responses. Unlike the native speakers, the non-native speakers strongly preferred S-V-NP structures (63.33%) and they also used object pronoun omitted constructions in their responses (27.5%). I do not report inferential statistics on the L2 English production task data as we can determine that the native response pattern is significantly different from the non-native pattern based on the descriptive statistics alone. The L1 Sinhala speakers' behaviour is similar in the French and English production tasks. They used object omitted constructions in both French and English.

Figure 25. Percentage (raw number) of each structure produced in the English version of the production task, by group



6.4 Conclusion

This chapter has reported the results derived from both French and English test instruments. The experimental tasks tested knowledge of adverb placement and object pronominalization in cross-linguistics perspectives.

The judgement data suggests that the L2 judgements and L3 judgement do not always converge. The audio AJT results suggest that the L3 speakers performed better than the L2 speakers on adverb placement. The L3 speakers differentiate grammatical S-V-Adv-X orders from ungrammatical S-Adv-V-X orders across the three adverb conditions. However, the L2 speakers do not distinguish between the grammatical and ungrammatical structures in the Wh-object question condition and the When-question condition. The written AJT results are comparable to the audio AJT results. In the Wh-

object question condition, the L2 speakers fail to distinguish between the grammatical and ungrammatical adverb placement, whereas the L3 speakers are target-like across the three adverb conditions. The non-native data shows a significant interaction of Grammaticality by Group. This suggests that the L2 differentiation is smaller than the L3 differentiation. There is also a significant three-way interaction of Task by Grammaticality by Group. This suggests that the judgements of the non-native speakers differ in the two AJTs.

In the production task, the responses of the participants included four structures: Adv-S-V-X, S-V-X-Adv, *S-Adv-V-O and S-V-Adv-X. The descriptive statistics suggest that the L2 speakers are different from the L3 speakers with respect to how they use grammatical and ungrammatical adverb placement in their responses. Like the native speakers, the L3 group predominantly used the target S-V-Adv-X structure across the three adverb conditions, whereas the L2 group's use of that structure is much lower. When the adverb conditions are collapsed together, the L3 group looks very similar to the native speakers. They have 83.12% use of S-V-Adv-X order and only 8% use of *S-Adv-V-X. The use of target order by the native speakers is only slightly higher than the L3 speakers (93.97%). I compared the L2 response pattern with the L3 response pattern, and the chi-square result was statistically significant ($\chi^2(2) = 66.30$, $p \leq .001$). This confirms that the two non-native groups are significantly different.

Turning to the results for object clitics, the non-native speakers clearly distinguish between the grammatical and ungrammatical structures in the AJTs. However, the L2 differentiation between the grammatical and grammatical structures is much bigger than that of the L3 speakers. The descriptive statistics show that the judgements of the non-native speakers differ in the two tasks. A significant main effect

of Task confirms that the non-native judgements are different in the two tasks. Interestingly, the results demonstrate no significant main effect of Group, suggesting that the judgment of the non-native speakers on object clitics are similar. In the production task, L2 speakers used preverbal object clitic constructions more frequently (31.48%) than the L3 speakers (21%). The L3 group has 11.33% of S-ø-V order. However, the L2 group's use that structure is much lower (1.85%). The chi-square result demonstrates that there is a significant association between the response patterns and the group variable. An inspection of the descriptive statistics show that the significant chi-square result is due to the use of *S-ø-V structure produced by the L3 group.

The judgements of the L2 English speakers show that across the three adverb conditions, the L2 English speakers do not differentiate greatly between target S-Adv-V-X order from ungrammatical S-V-Adv-X order with mean ratings of 5.79,5.62 and 5.25 on the grammatical structures and relatively lower ratings (4.74, 4.70 and 4.48) on the ungrammatical structures. When the three adverb conditions are collapsed, the difference between the native speakers and non-native speakers is even more pronounced. However, in the production task, like the English native speakers, the non-native speakers predominantly used the target structure in their responses across the three adverb conditions. Most importantly, the L2 English speakers have less than 16% use of *S-V-Adv-X order. When the three adverb conditions are considered together, the L2 results do not change considerably in the production task. The overall results suggest that the L2 English speakers are more target-like on English adverb placement in the production task than in the AJT.

This experiment finds that the L2 English speakers accept ungrammatical object pronoun omission with a mean rate of 3.86. However, the native group strongly

rejects S-V-ø structure in the AJT. In the production task, the English native speakers predominantly used object pronouns in their responses. However, interestingly, the use of object pronouns by the L2 English native is limited to 9.16%. Interestingly, the production task results show that the L2 English group used null object pronouns in English (27.50%), just as they did in French.

As discussed in Chapter 4, the present study tests the predictions made by two competing models of L3 acquisition to determine the source of transfer in L3 acquisition of French. The next chapter considers the results of this experiment in light of the predictions made by the CEM and the TPM. It also outlines the limitations of the study and gives directions for future research.

Chapter 7

Discussion

7.1 Introduction

This chapter discusses the results detailed in Chapter 6 in light of the hypotheses of the present thesis. As noted in Chapter 6, each of these hypotheses is formulated in relation to the two L3 models: the Cumulative Enhancement Model and the Typological Primacy Model. Firstly, I examine these hypotheses in terms of the results before concluding which of the two L3 Models best fits, if any. I repeat the same process for adverb placement and object clitics separately. Secondly, before concluding which of the two models would best capture the results, I examine the hypotheses on L2 English. Thirdly, I discuss the findings in the broader context of L3 acquisition and then the limitations of the present study are considered. Finally, I suggest directions for future research.

7.2 Hypotheses on L2 and L3 French

This section first examines the hypotheses related to adverb placement, before turning to the hypotheses on object clitics.

7.2.1 Hypotheses on L3 adverb placement

Hypotheses related to the L3 adverb placement were given in Sections 4.3.1.1, 4.3.1.2 and 4.3.1.3 (see Chapter 4). These are summarized and repeated below before considering how the results support or counter each hypothesis.

7.2.2 Hypothesis 1: L3 adverb placement under the CEM

Hypothesis 1 predicts that the L1-Sinhala–L2 English–L3-French speakers will experience facilitative transfer from Sinhala with regard to adverb placement in

French. For the L1-English–L2-French speakers, S-V-Adv-X structure is not available in their L1 English. Therefore, the L3 French speakers will be more target-like than the L2 French speakers on adverb placement due to facilitation from Sinhala. Under a narrow prediction, it is hypothesized that if the L3 speakers transfer from Sinhala, they will demonstrate the target-like adverb placement in a context where adverbials are focussed.

If the CEM is correct, In the AJTs, the L3 group would differentiate between grammatical S-V-Adv-X structures and ungrammatical S-Adv-V-X structures in a target-like manner. The descriptive statistics clearly suggest that the two groups are different from each other in the judgement tasks. In the audio AJT, the L3 speakers distinguish between the grammatical and ungrammatical adverb placement across the three adverb conditions. Moreover, the L3 pattern of judgments remained unchanged in the written AJT, whereas the L2 speakers failed to distinguish between grammatical and ungrammatical adverb placement across the three adverb conditions in the written AJT. The audio AJT results show that the L2 group does not make a distinction between the grammatical and ungrammatical structures in the Yes-no question condition. Similarly, in the written AJT, the L2 speakers distinguish between the grammatical and ungrammatical adverb placement only in two adverb conditions (When-question and Yes-no question).

Further, the results of the linear mixed effects model analysis confirmed that the L2 group differed significantly from the L3 group particularly in the audio AJT, due to the L2 group's lack of differentiation between the grammatical and ungrammatical adverb placement, in contrast to the L3 group. Thus, the results of the AJTs are compatible with the broad hypothesis that the L3 group will be target-like on

adverb placement whereas the L2 group may not be. The narrow hypothesis is addressed below, but first, I consider the production task data.

In the production task, the L3 group again demonstrates a different response pattern from that of the L2 speakers. When the three adverb conditions are considered together, the L3 group looks similar to the French native group. The French native speakers show a strong preference for S-V-Adv-X structure (93.73%). Similarly, the L3 speakers predominantly used S-V-Adv-X structure (83.12%) in their responses. The L3 group has only 8% ungrammatical S-Adv-V-X order. By contrast, the L2 group, with only 44.94% S-V-Adv-X order and a relatively high percentage of *S-Adv-V-X order (21.72%), looks uncontestably different from the L3 group. As noted in Chapter 6, a chi-square analysis was run on the L2 data. The result of this test was significant. It further confirms that the L2 response pattern is different from the L3 group. The comparison between the number of times the L3 speakers used S-V-Adv-X structure and the number of times they were expected to use it, shows that the S-V-Adv-X structure is not underrepresented in the L3 data and importantly, the L3 group has not overused the ungrammatical structure either. However, the L2 data evinced a different response pattern. The L2 group did not use the grammatical structure consistently across the three adverb conditions. Therefore, the overall results suggest that the L3 group is more target-like than the L2 group on the adverb placement. This suggests that the results of the production task are compatible with the broad hypothesis.

Turning to the narrower implication of this hypothesis, it was also predicted that if the L3 speakers transfer from Sinhala, they would demonstrate the target-like adverb placement in a context where they have to focus on time adverbials. As noted in Chapter 5, in the When-question condition time adverbials are in focus. Therefore,

if this prediction is correct, in the When-question condition, the L3 speakers would demonstrate a target-like judgement pattern in the AJTS and in the production task, they would predominantly use the target adverb placement. Let us now examine this prediction in relation to the results.

As discussed previously, the descriptive results show that the L3 speakers clearly distinguish between S-V-Adv-X structure and S-Adv-V-X structure across the three adverb conditions. Importantly, on adverb placement, the non-native speakers do not show a significant main effect of Type[11], suggesting that the question type has not played a significant role in the experiment. The production task results show that in response to the When-question condition, the L3 group predominantly used S-V-Adv-X order (84%) and the use of S-Adv-V-X structure is low at 20%. Therefore, as predicted, the L3 group is broadly target-like on adverb placement in the When-question condition. This means the findings support Hypothesis 1.

However, if (contra the CEM) non-facilitative transfer occurs in addition to facilitative transfer, then transfer of focus from Sinhala could also yield non-target-like behaviour. This is explored in relation to Hypothesis 2.

7.2.3 Hypothesis 2: L3 adverb placement under non-facilitative transfer from Sinhala

Hypothesis 2 predicts that if the L3 speakers transfer from L1 Sinhala, they will be non-target-like in a context where the direct object is in focus as in Sinhala, S-Adv-V-O order is required in a context where the object of the sentence is in focus.

This is investigated by means of the Wh-object condition in the AJTs as explained in Chapter 5. In the Wh-object condition, objects are in focus. Therefore, if Hypothesis 2 is correct, in AJTs, the L3 speakers would accept *S-Adv-V-X order and

[11] Type means the three adverb conditions: Wh-object, When-question and Yes-no question

reject S-V-Adv-X order as they would be prompted to accept *S-Adv-V-X order due to the focused-related word order effect transferred from Sinhala. On the other hand, in the production task, the L3 response pattern will be non-target-like as a result of predominantly using *S-Adv-V-X structure. Let us examine this prediction in relation to the results.

As discussed in Section 7.2.2, the L3 patterns of judgements are fairly uniform, regardless of the question structure. In other words, the L3 speakers' judgements are target-like[12] across the three adverb conditions. As noted previously, the results did not show a significant main effect of Type. In the production task, again, for the Wh-object condition, the L3 speakers predominantly used the target word order, and they were comparable to the native speakers. Most importantly, their use of the ungrammatical adverb placement did not increase as predicted by Hypothesis 2. Therefore, the results clearly demonstrate that Hypothesis 2 is not supported.

7.2.4 Hypothesis 3: L3 adverb placement under the TPM

Hypothesis 3 predicts that the L3 group will transfer from English, due to their perception that English is typologically much closer to French than Sinhala is. If the L3 group transfers from English, they would assume that *S-Adv-V-X structure is grammatical in French and they will be non-target-like on adverb placement in French. Moreover, the two non-native groups would have similar results.

As noted in Chapter 2, it is fair to argue that L3 French is typologically closer to L2 English than to L3 French. That is to say, the L3 speakers would perceive English much closer to French. If this assumption is true, then the L3 speakers would transfer their English grammar to the French interlanguage and their mental grammar

[12] The L3 speakers are target-like in the sense of a bigger differentiation between the grammatical and ungrammatical structures than the L2 speakers, but they do not behave as same as the native speakers

will not be Sinhala-like. Let us now consider whether typological primacy plays a significant role in L3 French with regards to adverb placement.

In the AJTs, the L3 speakers distinguish between the grammatical structure and the ungrammatical structure across the three adverb conditions whereas the L2 speakers demonstrated a different judgement pattern−they do not make a difference between the grammatical and ungrammatical structures across the three conditions in the judgement tasks. In the production task, the L3 speakers' use of grammatical adverb placement is relatively isomorphic to the French native speakers. However, the L2 speakers' use of grammatical adverb placement is much lower (44.94%) than that of the L3 speakers (83%) (see Figure 15). The L2 group also used ungrammatical adverb placement more frequently (21.72%) than the L3 group (8%). The overall results suggest that the L3 speakers do not demonstrate a stronger preference for *S-Adv-V-X order, as predicted.

Hypothesis 3 also considers whether the two non-native groups have similar results. In the written AJT, when the three adverb conditions were collapsed, the two non-native groups look similar to each other (see Figure 12). However, when the two AJTs are considered together, the non-native speakers demonstrate a significant interaction of Grammaticality by Group. This clearly shows that the non-native groups differ from each other with regards to the extent of their differentiation between grammatical and ungrammatical structures.

Importantly, the chi-square result reaches statistical significance in the group comparison. This shows that the non-native groups have dissimilar results. Therefore, the overall results are not compatible with the TPM because the L3 speakers are more target-like than the L2 speakers on adverb placement in French.

7.3 Hypotheses on object clitics

In this section, I first recall the hypotheses on object clitics, given in Chapter 4 and then I consider whether they are supported by the findings.

7.3.1 Hypothesis 4: L3 use of object clitics under the CEM

Hypothesis 4 predicts that the L3 group will be more target-like than the L2 group on preverbal clitics due to facilitation from Sinhala and they will also be target-like on ungrammatical object omission due to facilitation from English.

Broadly, the results do not support this hypothesis. First, let us recall the non-native group's pattern of judgements in the AJTs. The audio AJT results show that the L2 differentiation between the grammatical and ungrammatical structures is bigger than that of the L3 speakers. Interestingly, the L3 differentiation between the two structures in the written AJT is smaller than that of the audio AJT (see Figures 21 and 22). Moreover, the descriptive results show that the L2 speakers are more target-like than the L3 speakers. However, the statistical analysis of the object clitic data reveals no interaction involving Group. This suggests the non-native groups have similar judgement patterns in the judgement tasks.

In the production task, the L3 group used only 21 % of the target structure (S-Cl-V) whereas, that structure is more frequent in the L2 group (31.48%). Importantly, the L3 group used *S-ø-V structure more frequently (11.33%) than the L2 group (1.85%). The statistically significant chi-square result shows that there is a significant association between the Response variable and the Group variable. This shows that the response patterns of the two non-native speaker groups differ from each other. The number of times each structure (frequency) is used by the two groups are relatively similar except for *S-ø-V structure. Therefore, the non-native groups differ from each other because the L3 group used object clitic omission more frequently than the L2

group. Based on the production task results, we could reject Hypothesis 4 because the L3 group was not target-like on ungrammatical object clitic omission.

7.3.2 Hypothesis 5: L3 use of object clitics under non-facilitative transfer from Sinhala

Hypothesis 5 predicts that if the L3 group experiences non-facilitative transfer from Sinhala, they will accept ungrammatical object clitic omission in French.

As noted in the previous section, the L3 group tends to accept ungrammatical object omission in the AJTs and used S-ø-V structure significantly more frequently than the L2 speakers in the production task. Therefore, the results provide considerable evidence to suggest that the L3 speakers' mental grammar for French may allow S-ø-V structure. Therefore, Hypothesis 5 is supported by the results. Other factors that may related to the acquisition of object clitics are considered later in the chapter.

7.3.3 Hypothesis 6: L3 use of object clitics under the TPM

Hypothesis 6 predicts that both the L3 and L2 groups will have degraded accuracy and performance on clitics due to non-facilitative transfer from English on preverbal clitic placement. However, both groups will have a strong rejection of ungrammatical object clitic omission due to facilitative transfer from English.

If Hypothesis 6 is correct both groups would transfer from English and the results for the two groups would be similar. As discussed previously, in the AJTs, the non-native data do not show a significant interaction of Grammaticality by Group. This suggests that the two groups have similar judgement patterns on object clitics. However, descriptive and inferential statistics demonstrate that the L2 speakers are more target-like than the L3 speakers in the production task. Therefore, broadly, The TPM 6 is not supported.

7.4 Hypotheses on L2 English

This section first examines the hypotheses on adverb placement before turning to the hypotheses on object pronouns. The hypotheses on adverb placement given in Chapter 4 are summarized and repeated below.

7.4.1 Hypothesis 7: L2 adverb placement under facilitative transfer from Sinhala

Hypothesis 7 predicts that if there is L1 transfer into L2 English, the L1-Sinhala–L2-English speakers will demonstrate target-like adverb placement in a context where objects are in focus.

As noted in Chapters 5 and 6, objects are in focus in the Wh-object condition. Therefore, if Hypothesis 7 is correct, in the Wh-object condition, the L2 English speakers would rate S-Adv-V-X structure higher than *S-V-Adv-X structure. In the production task, in response to the Wh-object condition, they would use S-Adv-V-X structure more frequently than *S-V-Adv-X structure. Let us first recall the results.

In the wh-object condition, the L3 speakers clearly make a difference between the grammatical and ungrammatical structures in judgements. The grammatical structure receives a mean rating of 5.70, while the ungrammatical structure receives a mean rating of 4.97. In the production task, like the English native speakers, the L2 English speakers predominantly used target S-Adv-V-X structure in repose to the Wh-object condition (75%). Importantly, the L2 English speakers have only 9% use of *S-V-Adv-X structure. As reported in Chapter 6, a chi-square analysis was run on the L2 English data. However, the results did not reach statistical significance, suggesting that L2 English speakers do not change their response pattern in the three adverb conditions. Moreover, I found that the expected and observed frequencies for S-Adv-V-X and *S-V-Adv-X do not deviate significantly from each other in the Wh-object condition. Therefore, Hypothesis 7 is compatible with the findings.

7.4.2 Hypothesis 8: L2 adverb placement under non-facilitative transfer from Sinhala

Hypothesis 8 predicts that in a context where the L1-Sinhala–L2-English speakers have to focus on time adverbial, their adverb placement will be non-target-like due to non-facilitative transfer from Sinhala.

As noted previously, in the When-question condition time adverbials are in focus. Therefore, if Hypothesis 8 is correct, the L2 English speakers would accept *S-V-Adv-X structure and reject S-Adv-V-X structure in the When-question condition whereas in the production task, they will predominantly use the ungrammatical adverb placement in response to the When-question condition. Let us consider these predictions in relation to the results.

In the AJT, the L2 pattern of judgements in the When-question condition are very similar to the Wh-object condition. Again, the L2 English speakers make a difference between the grammatical and ungrammatical adverb placement. However, the differentiation between the two structures is relatively smaller than that of the native speakers. The grammatical structure receives a mean rating of 5.71 and ungrammatical structures receive a mean rating of 4.80. In the production task, the L2 speakers showed a target-like adverb placement in English. Like the native speakers, they predominantly used S-Adv-V-X order (69.18%) whereas *S-V-Adv-X was used less frequently (6.6%) in response to the When-question condition. As explained in the Chapter 6, the observed and expected frequencies for *S-V-Adv-X do not deviate significantly across the three adverb conditions. Further, the results suggest that the proportion of *S-V-Adv-X structure used by the L3 group in response to the When-question condition does not make any significant contribution to the chi-square results. Therefore, Hypothesis 8 is not supported. Thus, the overall results suggest that the L2 speakers have acquired the adverb placement in English to some extent.

7.5 Hypotheses on object pronouns

In this section, I recall the hypotheses related to object pronouns detailed in chapter 4 and then they are examined in relation to the results.

7.5.1 Hypothesis 9: L2 use of object pronouns under facilitative transfer from Sinhala

Sinhala accepts both overt and null object pronouns. Therefore, Hypothesis 9 predicts that the L1-Sinhala–L2-English speakers will be target-like on overt object pronoun.

The L2 English speakers attribute a mean ratio of 4.92 to S-V-ObjPro structure and a mean rating of (3.86) to *S-V-ø structure. The differentiation between the grammatical and ungrammatical is small compared to the native speakers. Moreover, In the production task, unlike the native speakers, the L2 English speakers have only 9.16% of S-V-ObjPro structure, and they also used *S-V-ø structure in their responses (27.5%). Instead of using S-V-ObjPro structure, they predominantly used the alternative S-V-NP structure (63.33%). The results show that the L3 speakers used *S-V-ø structure much more frequently than S-V-ObjPro structure. Therefore, there is no substantial evidence to support Hypothesis 9.

7.5.2 Hypothesis 10: L2 use of object pronouns under non-facilitative transfer from Sinhala

Hypothesis 10 predicts that the L2 English speakers will also be non-target-like on ungrammatical object pronoun omission under non-facilitative transfer from Sinhala.

As discussed in the previous section, the L2 English speakers make a difference between S-V-ObjPro structure and S-V-ø structure in judgements. However, the differentiation between the two structures is relatively small. In the production task, S-V-ObjPro structure was their least preferred structure, whereas their

second preference was S-V-ø structure. Similar to the French production task, in the English version, they used object pronoun omission in their response. This gives substantial evidence to support Hypothesis 10.

One of the criticisms levelled against L3 acquisition studies is related to not measuring participants' knowledge of relevant syntactic properties in L2. In the present study, it is imperative to determine whether adverb placement and object pronominalization are established in L2 in order to make predictions about transfer from both L1 and L2. Hermas (2010) found that his learners do not have a target-like adverb placement in their L2 French. Therefore, although he claims that L1 is privileged in L3, Slabakova (2016) argues that one can only make such claims after making sure that relevant properties in L2 are available for transfer. Unlike the participants in Hermas (2010) study, the L3 group in the present study demonstrates that adverb placement in L2 English is relatively established. However, the findings show that the L1 Sinhala speakers accept null objects pronouns in English. This gives substantial evidence to believe that the L2 English speakers' mental grammar for English allows null-object pronouns.

7.6 Models of L3 acquisition and L1-Sinhala–L2-English–L3-French data

In the previous sections, I discussed the results in relation to the hypotheses. This section turns to the discussion of the results in the broader context of L3 acquisition. I now recall the predictions made by the CEM and TPM about the source of transfer in L3 acquisition and consider which of the two models could best capture the results. The CEM proposes that any previously acquired syntactic structures, both from the learner's L1 and L2 are available in L3 acquisition. It predicts that prior language knowledge can enhance subsequent language acquisition or remain neutral. In other words, it does not predict non-facilitative transfer from either the L1 or L2.

The TPM, on the other hand, claims that transfer occurs selectively, depending on psycho-typological proximity between the target L3 and prior languages. The present study argues that if the TPM is correct, the L3 speakers would transfer from their L2 English which they would perceive typologically much closer to French than to their L1 Sinhala. Let us now consider which of the two L3 models best fits.

Hypothesis 1 tested the CEM, predicting that the L3 group will be more target-like than the L2 group on adverb placement due to facilitation from their L1 Sinhala, from which the target S-V-Adv-X could transfer. As predicted, the overall results suggest that the L3 speakers are more target-like than the L2 speakers on adverb placement.

Further, Hypothesis 2 proposed a prediction whereby L1 transfer is non-facilitative (contra CEM). The prediction was that the L3 speakers may transfer word order effects related to focus from their L1, which would lead to non-target-like acceptance or use of *S-Adv-V-X word order following certain question structures. However, the results yielded no evidence that the L3 speakers' behaviour changed in relation to different question contexts. Thus, evidence for non-facilitative transfer from Sinhala into L3 French was not found.

Hypothesis 3 tested the TPM. If the TPM is correct, then the non-native groups would transfer English S-Adv-V-X structure into French and consequently, both non-native groups would be non-target-like on the adverb placement. However, the study found clear evidence that both non-native groups differentiated in a target-like direction between the grammatical and ungrammatical adverb placement conditions. Neither group preferred the ungrammatical *S-Adv-V-X. This means that results do not provide support for the TPM, at least with regards to adverb placement.

Turning to the results for object clitics, Hypothesis 4 (under the CEM) proposed that the L3 group will be more target-like than the L2 group on object clitics. However, the production task results show that the L3 response pattern is non-target-like due to the relatively higher proportion of S-V-ø structure found in the L3 data than in the L2 data. The CEM does not account for non-facilitative transfer. Therefore, the results for object clitics are not compatible with the CEM.

Hypothesis 6 tested the TPM, predicting that the L3 group, like the L2 group, would transfer from English and consequently the behaviour of the two groups would be the same. In the AJTs, the non-native data showed a significant integration of Grammaticality by Group, suggesting that L3 differentiation between grammatical and ungrammatical structures is greater than the L2 group. Further, the production task results clearly show that that the two groups are different from each other with respect to the use of object clitics in French. Therefore, the TPM is not supported either.

The present study has investigated two properties (adverb placement and object clitics) with the objective of understanding the source of transfer in L3 French. The findings clearly suggest that English is not the source the L3 speakers' French grammar. Therefore, the TPM predictions are not compatible with the findings. Turning to the other model, the results for adverb placement are compatible with the CEM as the experiment found evidence to show that that the influence of Sinhala grammar could have led to the L3 group's greater target-likeness on adverb placement than the L2 group. However, the CEM is not supported by the findings on object clitics. The L3 group's object omission in the production task is the reason why the CEM doesn't fully account for the data, because this suggests non-facilitative transfer from Sinhala, and the CEM predicts only facilitative.

An important finding from the current data set is that, within a single group of L3 speakers, the results show that transfer is facilitative for one property whereas it is detrimental for the other. In this context, either of the two models tested can fully explain the source of transfer in L3 French. Therefore, the next step is to consider the results in light of the other L3 models outlined in Chapter 2. Let us first consider the Absolute L1 Transfer and L2 Status Factor models which predict wholesale transfer at the initial stage of L3 acquisition. Although these models make predictions about the initial stage of L3 acquisition, some studies have also found that wholesale transfer occurs at the intermediate level of L3 acquisition (Hermas, 2015).

The Absolute L1 Transfer claims that the native linguistic system of an L3 learner has a privileged status in L3 acquisition. If Sinhala has a privileged status in L3 French acquisition, then the L3 group would transfer the focus-related word order effect in Sinhala into French, which means that in the Wh-object condition the L3 group would demonstrate non-target-like acceptance and use of *S-Adv-V-X structure. As noted previously, the L3 group demonstrated target-like adverb placement across the three adverb conditions. Therefore, the Absolute L1 Transfer is not compatible with the findings.

The L2 Status Factor maintains that L2 morphosyntactic properties serve as a blocking effect to the access of L1 at the syntactic level and L2 morphosyntactic properties constitute the initial state of L3 acquisition. Therefore, if English grammar plays a privileged role in L3 French, then the L3 group would accept and use *S-Adv-V-X structure across the three adverb conditions, and they would also reject ungrammatical object clitic omission in French. However, none of these possibilities was true for the L3 group. Further, the L2 Status Factor predicts exactly the same as the TPM with respect to the L3 group under consideration in this thesis. I have shown

above that the TPM predictions are not met and the L2 Status Factor model is ruled out for the same reasons. Therefore, the findings cannot be squared with the wholesale transfer model.

I focus now on the Scalpel Model (Slabakova, 2016) to consider whether the L3 behaviour observed in the present study can be squared with this model. First, let's consider why this model is worth pursuing. The Scalpel Model maintains that both L1 and L2 are available for the L3 learner, but none of the previously acquired languages has a privileged role. Puig-Mayenco, Miller and Rothman (2018) also point out that previously acquired linguistic systems, namely L1 and L2 grammars are already activated in the bilingual mind. Further, the authors state that L1 and L2 grammars compete with each other in L3 acquisition.

The Scalpel Model argues that the previously acquired grammars act with "a scalpel-like precision" to extract the L1 and L2 options relevant to the target property (Slabakova, 2016, p. 6). Further, it maintains that transfer is selective and works property-by-property, which means that there is no requirement for wholesale transfer because the relevant properties are selected from the L1 or the L2. Further, this model argues that property by property transfer occurs when L3 input is similar to one of the previously acquired languages. As noted in Chapter 6, the results do not show that the L3 speakers transfer word order effects related to focus constructions from L1 Sinhala into L3 French. Therefore, later in this chapter, I argue against wholesale transfer. Puig-Mayenco, Miller, and Rothman (2018) argue that L3 learners even at the initial stage are sensitive to structural similarities between the L3 input other previously acquired languages. This shows that the parser makes a decision to transfer grammar related to a given property from whichever prior language contains that property. However, they also believe that property by property transfer could be affected by

other factors such as construction frequency, availability of unambiguous input, structural linguistic complexity and negative evidence. In relation to the acquisition of object clitics, I consider the relevance of negative evidence and unambiguous input. As a result of these factors some properties might not transfer the same way as others (Puig-Mayenco, et al., 2018). Further, due to the same factors, L3 learners could misinterpret the L3 input, which could result in nonfacilitative transfer in L3 grammar development. Later in the chapter, I also argue that negative evidence is required to learn some properties in L3 acquisition.

If the Scalpel Model is correct, I predicted that the L3 speakers would transfer from their L1 Sinhala as well as L2 English. The L3 speakers would use and accept postverbal adverbials due to facilitation from Sinhala. They would also use and accept preverbal clitics due to facilitative transfer from Sinhala. Facilitative transfer from English could mean that they would reject ungrammatical object clitic omission in French.

Turning to the present study, I suggest that results for adverb placement and object clitics, taken together, can be squared with the Scalpel Model for the following reasons. The results of this study are not compatible with the predictions under the CEM because the L3 speakers showed facilitative transfer for one property and detrimental transfer for the another.

I suggest that the L3 speakers of the present study are comparable to the participants in the study by Slabakova and Garcia Mayo (2015) which I discussed in Chapter 2. Let us recall the results of that study. The authors compare two groups of L3 speakers: L1-Basque–L2-Spanish–L3 English speakers and L1-Spanish–L2 Basque–L3-English speakers. They tested knowledge of null objects and topicalization in English. The authors found that the L3 speakers successfully rejected null objects in

English. However, topicalization in English was problematic for the two groups. Slabakova and Garcia Mayo (2015) attributed non-target-like performance on topicalization is due to insufficient negative evidence. Negative evidence is evoked when an overt correction of erroneous learner production is needed and offered (Slabakova, 2016, p. 9).

Compared to adverb placement in French, it appears that there is a need for negative evidence to learn object pronominalization in French because there is evidence in French input that could reinforce a Sinhala-based grammar whereby null object clitics are allowed. Like Slabakova (2016), Schwartz (1993) also argues that negative evidence leads to knowledge. Schwartz points out that "under certain circumstances, only negative evidence could provide the acquirer with the right kind of evidence in order to create the desired system of knowledge'' (p. 148).

Grüter (2006b) argues that input in French as in (98) could be misinterpreted to indicate that French allows null objects on the ground that postverbal position is empty (p, 366). Grüter (2006b) argues that on the basis of the absence of phonetically specified postverbal position as in (98), L2 learner could assume that French has object *pro.* Further*,* Grüter explains null objects are permissible within UG. Therefore, L2 French learners could be tempted to accept null objects in French. Grüter and Crago (2011) argue that L2 learners must establish the relationship between an object clitic and the absence of phonetically specified postverbal position. According to the authors, they must learn that an empty postverbal object position is allowed only if there is an object clitic. However, according to the authors, learners do not always establish this relationship.

(98) Annie le lave.
Annie it washes
'Annie is washing it.'

L3 speakers have learnt object clitics in classroom settings. Before entering the University of Kelaniya, they had learnt French at Sri Lankan mainstream schools and Alliance Française centres where French grammar is mainly taught using implicit teaching methods. Further, they may have implicitly learnt grammar rules related to object clitics. However, considering their teaching context, it is fair to argue that they had not explicitly taught whether null objects are permissible or not in French. we could also assume that their classroom input is not enough for them to establish the relationship between an object clitic and the absence of phonetically specified postverbal position. Therefore, it appears that negative evidence is not available for the L3 speakers to understand that null objects are not licensed in French. Compared to object clitics, there is no input in French that could reinforce an L3 French grammar that permits postverbal adverbs. Therefore, it is reasonable to argue that negative evidence is helpful for object clitics, especially for speakers whose L1 allows null object pronouns.

Interestingly, the L2 French speakers also showed some level of acceptance of null objects. Why did the L2 French speakers show some level of acceptance of object clitic omission when their L1 English does not allow null object pronouns? To answer this question, it is important to discuss previous literature. Previous studies have shown that the acquisition of object clitics in L1 and L2 French shows similar patterns. Studies have found that native French children produce object clitics much later than other functional categories (Schwartz & Sprouse, 1994; Hamann, Rizzi, & Frauenfelder, 1996). Hamann et al. (1996) found that native French children do not use object clitics until they reach three years. Before the development of object clitics, there is a high rate of object clitic omission in child French (Schwartz & Sprouse, 1994). Hamann et al. (1996) observed that object clitic omission declines as children start to use object clitics.

The authors also point out that although native French children omit object clitics, they rarely make placement errors.

Similarly, White (1996) and Paradis (2004) provide a detailed analysis of object clitics in child L2 French. Both authors found that object omission in child L2 French. Paradis (2004) reports that her participants omitted object clitics in 30% of obligatory contexts. White (1996) explicitly argues that object clitic acquisition in child L2 French is similar to L1 child French. Further, White (1996) and Paradis (2004) suggest that similar to child L1 French speakers, child L2 French speakers start to learn object clitics much later than other functional categories. Further, according to the authors, both native and non-native speakers omit object clitics at the initial stage of French acquisition. Belletti and Hamann (2004) conducted a longitudinal case study on L2 French object clitics. They looked at the French grammar development of an Italian-speaking child (Lorenzo). The authors compared Lorenzo's data with a German-speaking child (Elisa). Lorenzo started learning French at the age of 2;4 years, whereas Eliza was exposed to French at the age of 2;8 years (see more details in Chapter 2). The authors report that with regards to the acquisition of functional categories, Lorenzo experienced facilitative transfer from Italian. However, the total number of object clitics produced by Lorenzo did not differ significantly from the total number of object clitics produced by Liza. Another important observation was that both learners omitted object clitics at the initial stage. Towell and Hawkins (1996) also argue that object clitic acquisition in child L2 French is not influenced by L1 transfer effect. They state that child L2 French speakers omit object clitics even when they speak a non-prodrop language like English. Towell and Hawkins further explain that children have access to Universal Grammar (UG) and null objects are permissible within UG. Therefore, they argue that object clitic omission is recurrent in L2 child French. Granfeldt and Schlyter

(2004) tested knowledge of French object clitics in Swedish-French interlanguage in the initial stage of French acquisition. Their results did not show nonfacilitative transfer effect from Swedish. Therefore, the authors argue that cliticization should also be discussed in relation to the learner's age and proficiency.

However, some studies L1 transfer effect in L2 object clitic acquisition. Grüter and Crago (2011) argue that the acquisition of object clitic in child L2 French is influenced by L1 transfer and object clitic omission is common at the initial stage of French acquisition. Further, they argue that initial difficulties faced by L2 French learners gradually disappear with the appearance of object clitic. Rogers (2009) also found similar results. Her beginner group omitted object clitics, and the intermediate and the upper- intermediate groups predominately used the SVO structure in their responses in the production task. Following the account by Rowlett (2007) on object clitics, Rogers (2006) argues that the use of object clitics is associated with the projection of IP. According to Rogers, the L2 French learners' strong preference for SVO structure suggest that they could still be only projecting VP. She identifies this as an avoidance strategy, as explained in Chapter 5.

Turning now to the L2 French speakers of my study, as mentioned earlier, they showed some level of acceptance of null objects. In both audio and written tasks, clitics may not be salient because they are often unstressed. Thus, they are very short words. Therefore, they are easy to overlook by accident. This could be one reason why the L2 speakers showed some level of acceptance of object clitic omission. Another reason is that in contrast to the native speakers, the non-native speakers might not be confident in selecting the endpoint of the scale.

Turning again to the Scalpel Model, another possible reason for the L3 group to experience both facilitative and detrimental transfer could be attributed to the representation of the mental grammars in the multilingual brain. As noted in Chapter 2, the Scalpel Model argues that L3 grammar consists of sub grammars. In other words, L1, L2 and L3 grammars co-exist alongside each other (Slabakova, 2016). This notion is also compatible with the LPM. Let us recall some of the findings of the previous L2 acquisition studies to understand this notion.

As discussed in Chapter 2, the White (1991) study investigates adverb placement in L2 English by French native speakers. Her participants accepted both grammatical and ungrammatical adverb placement in the pre-test and the delayed-post-test. Similar results are reported by Rogers (2009) on adverb placement in L2 French. The judgment task data from her study show that L2 French speakers accepted both grammatical and ungrammatical structures. These findings provide substantial evidence to suggest that both L1 and L2 grammars co-exist in the interlanguage. Amaral and Roeper (2014) argue that the L2/L3 learner does not restructure any previously acquired linguistic features or rules in an attempt to move away from the L1 and to move towards the target L2/L3. The authors argue that instead of restructuring the existing grammar rules, the L2/L3 learner adds similar or distinct morphosyntactic rules into the interlanguage. When the L2/L3 learner attains native-like proficiency, based on linguistic cues, s/he can select the most appropriate grammar from the existing grammars.

Let us now turn to the L3 speakers of the present study. Why do they experience detrimental transfer with regards to object clitics when preverbal object pronominalization is allowed in Sinhala? The adverb L3 data shows that the L3 group preferred the target structure but they also accepted ungrammatical adverb placement.

This shows that they have access to both relevant grammars. Similarly, they have access to the preverbal pronoun grammar and the null-object grammar. Misanalysis of input such as (98–99) could lead the L3 group to selection the null-object grammar much more frequently than the target grammar. The L2 group does not have access to the null-object grammar. As a result, the L2 group used that structure less frequently.

Another central concept in both the Scalpel Model and the LPM is the notion that transfer occurs property-by-property. This means that when the L3 speaker learns a property of the target L3, a structure relevant to that property is selected from L1 or L2 and then transferred into L3 French. Further, it proposes that facilitative transfer occurs when a linguistic property in L3 input is structurally similar to the L1 and L2 whereas non-facilitative transfer occurs when the parser misanalyses L3 input and assumes that a property is shared between the target L3 and the other previously acquired languages. With regards to the two properties investigated in the present study, the L3 speakers are relatively more target-like than the L2 group on adverb placement because they correctly transferred S-V-Adv-X structure instead of selecting *S-Adv-V-X structure from Sinhala and English.

However, with regards to object clitics, because of French input like (98) and (99) (they may be ambiguous for the L3 speakers), the L3 speakers could misinterpret the L3 French input. Therefore, they could transfer *S-ø-V structure although preverbal object pronominalization is available in Sinhala. It is interesting to note that the L3 speakers also accepted null object pronouns in their L2 English, too. This means that they could transfer S-V structure either from L1 Sinhala or L2 English.

Interestingly, the non-native data evinces a significant main effect of Task on both adverb placement and object clitics. Although this finding is not necessarily

important to the predictions of the study, it is worth considering why the non-native judgements differ in the two AJTs. One obvious reason could be related to the recency effect. The participants completed the written AJT just after the audio AJT. Therefore, they make judgements on the tokens that they had already heard.

Another reason for task effect would be in the audio AJT, the participants had to make their judgements implicitly whereas, in the written AJT, they could have used their explicit knowledge when making the judgements. Previous literature on classroom base research shows that a wide variety of tasks are used to measure implicit and explicit knowledge. Implicit grammar knowledge is generally measured via timed AJTs, self-paced reading tasks and production tasks, whereas explicit knowledge is generally measured via untimed AJTs and metalinguistic knowledge tests (Dienes & Scott, 2005; Ellis, 2005, 1991). However, the audio AJTs are rarely used in classroom-based research (Indrarathne, Ratajczak & Kormos, 2018). Similar to the present study, Murphy (1997) also used both audio and written AJTs. She investigated declarative sentences with embedded questions and wh-questions that violated subjecency and asked whether there is a difference in the results presented visually and aurally. Murphy found that not only her participants were slower in the audio AJT, but they were also less accurate. This shows that her results are compatible with the results of the present study. The non-native speakers in the present study were less accurate in the Audio AJT.

As discussed in Chapter 5, after considering the diglossic nature of Sinhala, I expected that the L3 speakers would accept *S-ø-V structure relatively more in the audio AJT than in the written AJT. However, the results are contrary to what was expected. The L3 speakers accepted *S-ø-V structure slightly more (but not statistically significantly) in the written than in the audio AJT.

To conclude, this section has shown that either of the two L3 acquisition models originally considered—the CEM and the TPM—fully account for the results obtained from the L3 speakers on adverb placement and object clitics. Consequently, I have considered other models and found that the results of the experiment are compatible with the Scalpel Model and the LPM. The next section outlines the limitations of the present study.

7.7 Limitation of the study

A few limitations related to the research design could be identified. There are number of ways to make the research design more rigorous: for example, in the adverb condition, we can ensure more uniformity within the different question structures, so that the Wh-object condition includes transitive verbs with a direct object, and we can also ensure that the French and English versions of the adverb task are fully reversible so that all grammatical sentences in French are ungrammatical in French (rather than including dispreferred structures).

The findings show that the different adverb conditions do not affect the judgements of the L3 speakers. However, more robust testing of these question types can be carried out by running a new experiment that focuses just on adverb placement, with at least 10 tokens per each adverb condition. Increasing the number of tokens would increase the statistical power of the study so that if there are any between-structure differences, there is a greater chance of finding them. It was decided include only thirty adverb tokens (ten for each adverb condition) after considering the time required for the experiment.

Another limitation is related to the language background questionnaire. It does not ask whether the L2 participants speak other additional languages. It could have been improved by adding this information.

7.8 Directions for future research

The findings show that the L3 speakers do not change their judgements in relation to the question type (Wh-object, When-question and Yes-no question). However, as mentioned in the previous section, more robust testing of these question types can be carried out by running a new experiment that focuses just on adverb placement, with at least 10 tokens per each adverb condition but I would first run a pilot study in Sinhala, in order to test whether the focus manipulations really lead to the word orders that I predicted in this study. One weakness of the current study is that there is no quantitative data on Sinhala and the claims about Sinhala not been tested in an experiment. The findings from Sinhala could provide insights about improved sentence design for the French version.

I am particularly interested in testing further the predictions of the Scalpel Model and the LPM by comparing two groups of L3 speakers: a group of L1-Sinhala–L2-English–L3-French speakers and a group of L1-Moroccan Arabic–L2-French–L3-English speakers. Comparison of L1-Moroccan Arabic–L2-French–L3- English speakers with L1-Sinhala–L2-English–L3-French speakers could help to shed light on the possibility of property-by-property transfer due to the specific characteristics of these language combinations with respect to adverbs and object pronouns. As noted in Chapter 3, Sinhala allows both preverbal and postverbal adverb placement. Similarly, Moroccan Arabic allows both preverbal and postverbal adverbs as in (100) and (101) (Hermas, 2010, p. 384).

(100) Ali ka-y-s atay dima
Ali Asp-3MS drink tea always
'Ali always drinks tea'

(101) Ali dima ka-y-s atay
Ali always Asp-3MS drink tea

'Ali always drinks tea'

(102) Paka-naa
Ate-1PL
'We eat'

(103) Ka-mu
Ate-1PL
'We eat'

Alhawary (2005) points out that null subjects are licensed in Moroccan Arabic because of the rich verbal inflection. This is exemplified in (102) (Alhawary, 2005, p. 217). Sinhala also allows null subjects as shown in (103).

With respect to adverb placement, the L3 groups already have the target structures in their L1. Therefore, the L3 groups would transfer from Sinhala or Arabic and this will be beneficial for their L3 development. However, if they transfer from their respective L2 (English or French), then both groups would experience non-facilitative transfer. Turning to subject pronouns, the L3 groups will not benefit from the L1 transfer. However, L2 transfer would be beneficial for subject pronouns. Therefore, if the transfer is selective and occurs property-by-property as predicted by the model, then, ideally, the two L3 groups should transfer from both the L1 and L2.

Slabakova (2016) points out that the Scalpel Model can be falsifiable if wholesale transfer is found at the initial stage. If both the L3 groups show non-target-like knowledge on the two properties, it would suggest wholesale from their L1. The LI Sinhala speakers could transfer S-Adv-V-X structure from their L1 Sinhala whereas the L1 Arabic speakers would transfer S-V-Adv-X structure from L1 Arabic. Moreover, the two L3 groups would also accept null subject in French and English. If the two groups experience non-facilitative transfer with respect to the two structures, we would have substantial evidence to falsify this model based on wholesale transfer.

7.9 Conclusion

This chapter has discussed the results in light of the predictions made two influential models of L3 acquisition and found that none of the two L3 models tested initially are compatible with the results. However, I have suggested that the source of transfer in L3 French acquisition can be squared with the Scalpel Model and the Linguistic Proximity Model. This chapter has outlined the limitations of the present study and it has given directions for future intention. The next chapter makes the concluding remarks.

Chapter 8

Conclusion

The presents study has set out to investigate the nature of grammar development in L3 acquisition. To achieve this goal, the present study tested knowledge of adverb placement and object clitics by a group of L3 speakers of French whose language profile that had not previously been studied: L1 Sinhala, L2 English and L3 French. Chapters 1 and 3 have detailed the syntactic similarities and differences between English, French and Sinhala. Based on the observations made in Chapter 3, I predicted that the L3 speakers would transfer from Sinhala, which would be facilitative for L3 French acquisition of adverb placement and object clitics. However, I showed that Sinhala is typologically more distant from both English and French. On the other hand, I also entertained the possibility of L2 English transfer.

As detailed in Chapter 2 and later in Chapter 4, to understand the source of transfer in L3 acquisition of French, the present thesis considered the predictions made by two competing models (TPM and CEM) in relation to the two properties studied in the present thesis. Chapter 2 elucidated the predictions made by the TPM and the CEM and other influential L3 models. The same chapter presented several empirical studies in support of each L3 model. The experimental research design which I used to empirically test knowledge of adverb placement and object clitics was detailed in Chapter 5. The same chapter provided a detailed account of the test battery and the participants' language profiles.

Chapter 6 reported the results of the experiment for each of the structures and for each of the groups. In addition to the L2 and L3 French results, Chapter 6

presented the results for L2 English. The L2 and L3 speakers were in two different groups. However, the L2 English speakers were the same speakers who were in the L3 French group. As expected, the French native speakers strongly rejected the ungrammatical adverb placement and accepted the grammatical adverb placement in all three experimental tasks. The non-native speakers also differentiated the grammatical adverb placement from the ungrammatical adverb placement. This difference was statistically significant. However, the magnitude of differentiation was smaller in the non-native groups than in the native group. As predicted, the L3 group demonstrated a more target-like judgement pattern than that of the L2 group on adverb placement. This was confirmed by the inferential statistics−in the AJTs, the non-native data demonstrated a significant interaction of Grammaticality by Group.

In the production task, the L3 speakers' pattern was similar to the French native speakers. The L3 group predominantly used the target adverb placement and importantly, they used the ungrammatical structure less frequently than the L2 group. Therefore, the L3 group was more target-like than the L3 group on adverb placement. A chi-square analysis was run on the L3 data which reveals that the L3 speakers' response pattern remained unchanged in response to all adverb conditions. The overall results show that the L3 speakers are more target-like than the L2 speakers.

Turning to object clitics, the native speakers strongly rejected ungrammatical object clitic omission and accepted preverbal clitic structures. The non-native speakers showed no significant main effect of Group on object clitics in the AJTs. This shows that the non-native speakers demonstrated relatively similar judgement patterns on object clitics. However, the production task results showed that the L3 group was less target-like than the L2 group on object clitics. The significant chi-

square result showed that the response pattern of the L2 group is different from the L3 group as the L3 speakers used a high proportion of object clitic omitted structures.

It was decided to investigate ~~knowledge~~ knowledge of adverb placement and object pronouns in L2 English, to determine whether the relevant properties are established in both L2 English and L3 French. Turning now to the L2 English results, the L2 English speakers were more target on adverb placement than object pronouns. Further, the findings also showed that the L3 group accepted null object pronouns both in French (11.33%) and in English (27%).

In chapter 7, I evaluated the predictions made by the CEM and TPM in light of the results presented in Chapter 6. As predicted, the results for adverb placement are compatible with the CEM as the L3 group is more target-like than the L2 group, which can be explained in terms of facilitation from Sinhala. However, the L3 speakers experienced non-facilitative transfer from Sinhala with respect to object clitics. Non-facilitative transfer is not predicted by the CEM. Therefore, the findings of the experiment are only partially compatible with the CEM. Turning to the TPM, I predicted transfer from English. For adverbs, this leads to a prediction of an overuse or over acceptance of the ungrammatical pre-verbal adverb structure. This was not attested in the results. Further, on clitic structures, the L3 group demonstrated greater use or acceptance of object clitic omission than the L2 group. Taken together, the results for both structures suggest that English was not the source of transfer. Therefore, the results are not compatible with the TPM either. As a next step, I turned to the other L3 models. I first considered the Absolute L1 Transfer and L2 Status Factor. However, these models predict wholesale transfer in L3 acquisition, and I found no evidence to support wholesale transfer from either English or French.

Finally, I examined the prediction made by the Scalpel Model and the LPM in relation to the results. These models predict that transfer occurs property-by-property. If transfer occurs property-by-property, then learners could experience facilitative transfer for one property and non-facilitative transfer for this other. Supporting this view, I argue that the L3 speakers in the present study experienced facilitative transfer for adverb placement as they were more target-like on adverbials than the L2 speakers. With regards to object clitics, the L3 speakers were less target-like on preverbal clitics as they experience non-facilitative transfer form Sinhala. The results showed that the L3 speakers had not acquired object pronominalization in English and French. This suggests that with regards to object clitics. the L3 speakers transferred from Sinhala. The results also show that the L3 speakers had acquired adverb placement in English and French. S-V-Adv-X structure is ungrammatical in English. However, S-V-Adv-X structure is available in Sinhala. Therefore, transfer from Sinhala could have been beneficial for L3 speakers. As we noted earlier, unlike the CEM, the Scalpel Model and LPM predict both facilitative and nonfacilitative transfer. Therefore, the results are more compatible with the Scalpel Model and LPM.

To conclude, the key goal of the present thesis was to shed light on the nature of grammar development in L3 acquisition. To achieve this goal, I investigated knowledge of adverb placement and object clitics by a group of L3 French speakers with a language profile that has not previously been studied. The present study provided evidence against the TPM and wholesale transfer models and proposes that transfer occurs property-by-property with the possibility of facilitative and non-facilitative transfer. The findings also suggest that the two non-native groups have access to both grammatical and ungrammatical structures, specially, with respect to adverb placement as the non-native speakers preferred the grammatical structure, but

they also the accepted ungrammatical structure. Therefore, the present study contributes to the L3 acquisition field by finding evidence to support not only the Scalpel Model and the LPM, but also Multiple Grammars Proposal. It also contributes to the existing L3 and L2 French acquisition data by providing new data which will be useful in teaching and developing research-informed teaching materials for both L2 and L3 learners of French.

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Appendix 1: The language background questionnaire

A cross-linguistic study of L2 and L3 French acquisition

Linguistic background questionnaire

Background Information

1) Number:
2) Gender:
3) Age:
4) Education level (highest diploma or degree):
5) Occupation/Profession:

Linguistic information

(1) What is your native language?

(2) How many years have you spent learning French?

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(3) On a scale from 1 (least proficient) to 7 (fully fluent), how do you rate your French proficiency?

Speaking	
Reading	
Writing	
Comprehension	
Overall proficiency	

Appendix 2: **Self-Assessed French proficiency mean ratings (rating scale 1-7)**

	Speaking	Reading	Writing	Overall proficiency
L2 Speakers	4.55	5.93	4.73	4.01
L3 Speakers	3.53	4.91	3.25	3.91

Appendix 3: The French proficiency test

Pouvez-vous donner les renseignements suivants :

numéro :

sexe : masculin / féminin

langue maternelle :

Complétez le texte avec des mots convenables.

Le taux de CO2 dans l'atmosphère augmente plus vite que prévu. La croissance économique mondiale ___(1)___ provoqué un accroissement de ___(2)___ teneur en dioxyde de ___(3)___ (CO2) dans l'atmosphère beaucoup ___(4)___ rapidement que prévu, selon une étude ___(5)___ lundi dans les comptes rendus de l'Académie ___(6)___ des sciences des États-Unis. Cette étude ___(7)___ que la concentration des émissions ___(8)___ gaz carbonique dans l'atmosphère a ___(9)___ de 35% en 2006, entre le début ___(10)___ années 1990 et les ___(11)___ 2000-2006, passant de 7 à 10 milliards de tonnes ___(12)___ an, alors que le protocole de Kyoto prévoyait ___(13)___ en 2012, ces émissions responsables ___(14)___ réchauffement climatique devaient ___(15)___ baissé de 5% par ___(16)___ à 1990. "Les améliorations dans l'intensité carbonique de l'économie ___(17)___ stagnent depuis 2000, après trente ___(18)___ de progrès, ce qui a provoqué cette ___(19)___ inattendue de la concentration de CO 2 ___(20)___ l'atmosphère", indique dans ___(21)___ communiqué le British Antarctic Survey, ___(22)___ a participé à cette étude. __(23)___ les chercheurs, les carburants polluants ___(24)___ responsables de 17% de cette augmentation, ___(25)___ que les 18 % restant sont ___(26)___ à un déclin de la capacité des "puits" naturels comme ___(27)___ forêts ou les océans ___(28)___ absorber le gaz carbonique. " ___(29)___ y a cinquante ans, pour chaque tonne de CO 2 émise, 600 kg ___(30)___ absorbés par les puits naturels. ___(31)___ 2006, seulement 550 kg par tonne ont été ___(32)___, et cette quantité continue à baisser", explique ___(33)___auteur principal de l'étude, Pep Canadell, du Global Carbon Project. "La baisse de l'efficacité ___(34)___ puits mondiaux laisse ___(35)___ que la stabilisation de cette ___(36)___ sera encore plus ___(37)___ à obtenir que ce que l'on pensait jusqu'à ___(38)___", indique pour sa ___(39)___ le British Antarctic Survey. Ces ___(40)___ obligent à une révision à la hausse ___(41)___ prévisions du Groupe intergouvernemental d'experts ___(42)___ l'évolution du climat qui, dans son

___(43)___ de février, tablait sur l'augmentation de la température ___(44)___ de la terre de 1,8°C à 4°C ___(45)___ l'horizon 2100.

Appendix 4: The English proficiency test

Oxford University
Press and
University of Cambridge Local Examinations
Syndicate

Student number: ……

Date: ……

Quick placement test

.

.

Part 1

Questions 1 – 5

- Where can you see these notices?
- For questions **1** to **5**, mark **one** letter **A**, **B** or **C** on your Answer Sheet.

1

Please leave your room key at Reception.

A in a shop
B in a hotel
C in a taxi

2

Foreign money changed here

A in a library
B in a bank
C in a police station

3

AFTERNOON SHOW
BEGINS AT 2PM

A outside a theatre
B outside a supermarket
C outside a restaurant

4

CLOSED FOR HOLIDAYS

Lessons start again on the 8 th January

A at a travel agent's
B at a music school
C at a restaurant

5

Price per night:

£10 a tent
£5 a person

A at a cinema
B in a hotel
C on a camp-site

Questions 6 – 10

- In this section you must choose the word which best fits each space in the text below.
- For questions **6** to **10**, mark **one** letter **A**, **B** or **C** on your Answer Sheet.

- **Scotland**

Scotland is the north part of the island of Great Britain. The Atlantic Ocean is on the west and the

North Sea on the east. Some people **(6)** ..... Scotland speak a different language called Gaelic. There are **(7)** ..... five million people in Scotland, and Edinburgh is **(8)** ..... most famous city.

Scotland has many mountains; the highest one is called 'Ben Nevis'. In the south of Scotland, there are a lot of sheep. A long time ago, there **(9)** ..... many forests, but now there are only a

(10) ..... .

Scotland is only a small country, but it is quite beautiful.

6	**A**	on	**B**	in	**C**	at
7	**A**	about	**B**	between	**C**	among
8	**A**	his	**B**	your	**C**	its
9	**A**	is	**B**	were	**C**	was
10	**A**	few	**B**	little	**C**	lot

Questions 11 – 20

In this section you must choose the word which best fits each space in the texts.
For questions **11** to **20**, mark **one** letter **A**, **B**, **C** or **D** on your Answer Sheet.

• **Alice Guy Blaché**

Alice Guy Blaché was the first female film director. She first became involved in cinema whilst working for the Gaumont Film Company in the late 1890s. This was a period of great change in the cinema and Alice was the first to use many new inventions, **(11)** ..... sound and colour.

In 1907 Alice **(12)** ..... to New York where she started her own film company. She was **(13)** ..... successful, but, when Hollywood became the centre of the film world, the best days of the independent New York film companies were **(14)** ..... . When Alice died in 1968, hardly anybody **(15)** ..... her name.

11	**A** bringing	**B** including	**C** containing	**D** supporting
12	**A** moved	**B** ran	**C** entered	**D** transported
13	**A** next	**B** once	**C** immediately	**D** recently
14	**A** after	**B** down	**C** behind	**D** over
15	**A** remembered	**B** realised	**C** reminded	**D** repeated

UFOs – do they exist?

UFO is short for 'unidentified flying object'. UFOs are popularly known as flying saucers, **(16)** ..... that is often the **(17)** ..... they are reported to be. The **(18)** ..... "flying saucers" were seen in 1947 by an American pilot, but experts who studied his claim decided it had been a trick of the light.

Even people experienced at watching the sky, **(19)** ..... as pilots, report seeing UFOs. In

1978 a pilot reported a collection of UFOs off the coast of New Zealand. A television **(20)** ..... went up with the pilot and filmed the UFOs. Scientists studying this phenomenon later discovered that in this case they were simply lights on boats out fishing.

16 **A** because **B** therefore **C** although **D** so

17 **A** look **B** shape **C** size **D** type

18 **A** last **B** next **C** first **D** oldest

19 **A** like **B** that **C** so **D** such

20 **A** cameraman **B** director **C** actor **D** announcer

Questions 21 – 40

In this section you must choose the word or phrase which best completes each sentence.
For questions **21** to **40**, mark **one** letter **A**, **B**, **C** or **D** on your Answer Sheet.

21 The teacher encouraged her students ..... to an English pen-friend.

A should write **B** write **C** wrote **D** to write

22 They spent a lot of time ..... at the pictures in the museum.

A looking **B** for looking **C** to look **D** to looking

23 Shirley enjoys science lessons, but all her experiments seem to ..... wrong.

A turn **B** come **C** end **D** go

24 ..... from Michael, all the group arrived on time.

A Except **B** Other **C** Besides **D** Apart

25 She ..... her neighbour's children for the broken window.

A accused **B** complained **C** blamed **D** denied

26 As I had missed the history lesson, my friend went ..... the homework with me.

A by **B** after **C** over **D** on

27 Whether she's a good actress or not is a ..... of opinion.

A matter **B** subject **C** point **D** case

28 The decorated roof of the ancient palace was ..... up by four thin columns.

A built **B** carried **C** held **D** supported

29 Would it ..... you if we came on Thursday?

A agree **B** suit **C** like **D** fit

30 This form ..... be handed in until the end of the week.

A doesn't need **B** doesn't have **C** needn't **D** hasn't got

31 If you make a mistake when you are writing, just ..... it out with your pen.

A cross **B** clear **C** do **D** wipe

32 Although our opinions on many things ..... , we're good friends.

A differ **B** oppose **C** disagree **D** divide

33 This product must be eaten ..... two days of purchase.

A by **B** before **C** within **D** under

34 The newspaper report contained ..... important information.

A many **B** another **C** an **D** a lot of

35 Have you considered ..... to London?

A move **B** to move **C** to be moving **D** moving

36 It can be a good idea for people who lead an active life to increase their ..... of vitamins.

A upturn **B** input **C** upkeep **D** intake

37 I thought there was a ..... of jealousy in his reaction to my good fortune.

A piece **B** part **C** shadow **D** touch

38 Why didn't you ..... that you were feeling ill?

A advise **B** mention **C** remark **D** tell

39 James was not sure exactly where his best interests ..... .

A stood **B** rested **C** lay **D** centred

40 He's still getting ..... the shock of losing his job.

A across **B** by **C** over **D** through

Part 2

Questions 41 – 50

In this section you must choose the word or phrase which best fits each space in the texts.
For questions **41** to **50**, mark **one** letter **A**, **B**, **C** or **D** on your Answer Sheet.

• The tallest buildings - SKYSCRAPERS

Nowadays, skyscrapers can be found in most major cities of the world. A building which was many **(41)** …….. high was first called a skyscraper in the United States at the end of the 19th century, and New York has perhaps the **(42)** …….. skyscraper of them all, the Empire State Building. The **(43)** …….. beneath the streets of New York is rock, **(44)** …….. enough to take the heaviest load without sinking, and is therefore well-suited to bearing the **(45)** …….. of tall buildings.

41 **A** stages **B** steps **C** storeys **D** levels

42 **A** first-rate **B** top-class **C** well-built **D** best-known

43 **A** dirt **B** field **C** ground **D** soil

44 **A** hard **B** stiff **C** forceful **D** powerful

45 **A** weight **B** height **C** size **D** scale

• SCRABBLE

Scrabble is the world's most popular word game. For its origins, we have to go back to the 1930s in the USA, when Alfred Butts, an architect, found himself out of **(46)** …….. . He decided that there was a **(47)** ……. for a board game based on words and **(48)** ……. to design one. Eventually he made a **(49)** ……. from it, in spite of the fact that his original **(50)** ……. was only three cents a game.

46 **A** earning **B** work **C** income **D** job

47 **A** market **B** purchase **C** commerce **D** sale

48 **A** took up **B** set out **C** made for **D** got round

49 **A** wealth **B** fund **C** cash **D** fortune

50 **A** receipt **B** benefit **C** profit **D** allowance

Questions 51 – 60

In this section you must choose the word or phrase which best completes each sentence.
For questions **51** to **60**, mark **one** letter **A**, **B**, **C** or **D** on your Answer Sheet.

51 Roger's manager ..... to make him stay late if he hadn't finished the work.

A insisted **B** warned **C** threatened **D** announced

52 By the time he has finished his week's work, John has hardly ..... energy left for the weekend.

A any **B** much **C** no **D** same

53 As the game ..... to a close, disappointed spectators started to leave.

A led **B** neared **C** approached **D** drew

54 I don't remember ..... the front door when I left home this morning.

A to lock **B** locking **C** locked **D** to have locked

55 I ..... to other people borrowing my books: they always forget to return them.

A disagree **B** avoid **C** dislike **D** object

56 Andrew's attempts to get into the swimming team have not ..... with much success.

A associated **B** concluded **C** joined **D** met

57 Although Harry had obviously read the newspaper article carefully, he didn't seem to have

..... the main point.

A grasped **B** clutched **C** clasped **D** gripped

58 A lot of the views put forward in the documentary were open to ..... .

A enquiry **B** query **C** question **D** wonder

59 The new college ..... for the needs of students with a variety of learning backgrounds.

A deals **B** supplies **C** furnishes **D** caters

60 I find the times of English meals very strange – I'm not used ..... dinner at 6pm.

A to have **B** to having **C** having **D** have

Appendix 5: The test items in the French AJTs

Wh-Object question	
Grammatical	À qui est-ce que tu écris ? *J'écris **souvent** à Simon.*
Ungrammatical	À qui est-ce que tu écris ? *Je **souvent** écris à Simon.*
Grammatical	Avec qui est-ce que tu sors le vendredi soir ? *Je sors **souvent** avec Émilie et Élodie.*
Ungrammatical	Avec qui est-ce que tu sors le vendredi soir ? *Je **souvent** sors avec Émilie et Élodie.*
Grammatical	Avec qui est-ce que Simon rentre à la maison ? Il rentre **toujours** avec François.
Ungrammatical	Avec qui est-ce que Simon rentre à la maison ? Il **toujours** rentre avec François.
Grammatical	De quel instrument de musique est-ce que Simon joue ? *Il joue **fréquemment** de la guitare à l'école.*
Ungrammatical	De quel instrument de musique est-ce que Simon joue ? *Il **fréquemment** joue de la guitare à l'école.*
Grammatical	À qui est-ce que Simon téléphone après le dîner ? *Il téléphone **régulièrement** à ses amis après le dîner.*
Ungrammatical	À qui est-ce que Simon téléphone après le dîner ? Il **régulièrement** téléphone à ses amis après le dîner.
When-question condition	
Grammatical	Quand est-ce que tu vois tes amis ? *Je vois **toujours** mes amis le samedi soir.*
Ungrammatical	Quand est-ce que tu vois tes amis ? *Je **toujours** vois mes amis le vendredi soir.*
Grammatical	Quand est-ce que Simon téléphone à son ami ?

	*Il téléphone **fréquemment** à son ami.*
Ungrammatical	Quand est-ce que Simon téléphone à son ami ? *Il **fréquemment** téléphone à son ami.*
Grammatical	Quand est-ce que Simon fait ses devoirs ? *Il fait **toujours** ses devoirs le matin.*
Ungrammatical	Quand est-ce que Simon fait ses devoirs ? *Il **toujours** fait ses devoirs le matin*
Grammatical	Quand est-ce que Charotte fait de la natation ? *Elle fait **souvent** de la natation pendant le weekend.*
Ungrammatical	Quand est-ce que Charotte fait de la natation ? *Elle **souvent** fait de la natation pendant le weekend*.
Grammatical	Quand est-ce que Charlotte mange à la cantine ? Elle **régulièrement** mange à la cantine.
Ungrammatical	Quand est-ce que Charlotte mange à la cantine ? *Elle mange **régulièrement** à la cantine.*
Yes-no question	
Grammatical	Est-ce que tu penses que Simon fait ses devoirs ? *Oui, je pense qu'il fait **souvent** ses devoirs.*
Ungrammatical	Est-ce que tu penses que Simon fait ses devoirs ? *Oui, je pense qu'il **souvent** fait ses devoirs.*
Grammatical	Est-ce que tu fais tes courses à Carrefour ? *Oui, je fais **fréquemmen**t mes courses à Carrefour ?*
Ungrammatical	Est-ce que tu fais tes courses à Carrefour ?

	*Oui, je **fréquemment** fais mes courses à Carrefour.*
Grammatical	Est-ce que tu penses que Charlotte voit ses amis ? *Oui, je pense qu'elle voit **régulièrement** ses amis.*
Ungrammatical	Est-ce que tu penses que Charlotte voit ses amis ? *Oui, je pense qu'elle **régulièrement** voit ses amis*.
Grammatical	Est-ce que tu t'ennuies pendant ta pause-déjeuner ? *Non, je déjeune **toujours** avec mes collègues.*
Ungrammatical	Est-ce que tu t'ennuies pendant ta pause-déjeuner ? *Non, je **toujours** déjeune avec mes collègues.*
Grammatical	Est-ce que Pierre révise ses cours ? *Non, il sort **souvent** avec ses amis.*
Ungrammatical	Est-ce que Pierre révise ses cours ? *Non, il **souvent** sort avec ses amis.*
Clitics	
Grammatical	Est-ce que tu peux acheter les cadeaux ? Oui, je vais **les** acheter aujourd'hui
Ungrammatical	Est-ce que tu peux acheter les cadeaux ? Oui, je vais acheter aujourd'hui
Grammatical	Est-ce que Simon va faire sa valise ? *Oui, il va **la** faire*.
Ungrammatical	Est-ce que Simon va faire sa valise ? *Oui, il va faire*.
Grammatical	Est-ce que Simon va parler à sa petite sœur ?

	*Oui, il va **lui** parler ce matin.*
Ungrammatical	Est-ce que Simon va parler à sa petite sœur ? *Oui, il va parler ce matin.*
Grammatical	Est-ce qu'ils vont réciter les poèmes ? *Oui, ils vont **les** réciter.*
Ungrammatical	Est-ce qu'ils vont réciter les poèmes ? *Oui, ils vont réciter.*
Grammatical	Est-ce que Charlotte voit souvent ses amis ? Oui, je crois qu'elle **les** voit souvent.
Ungrammatical	Est-ce que Charlotte voit souvent ses amis ? Oui, je crois qu'elle voit souvent.
Grammatical	Est-ce que tu vas envoyer les lettres ? Oui, je vais **les** envoyer aujourd'hui.
Ungrammatical	Est-ce que tu vas envoyer les lettres ? Oui, je vais envoyer aujourd'hui.
Grammatical	Est-ce que tu penses que Charlotte écoute la maîtresse ? *Oui, je pense qu'elle **l**'écoute toujours*.
Ungrammatical	Est-ce que tu penses que Charlotte écoute la maîtresse ? *Oui, je pense qu'elle écoute toujours*.
Grammatical	Est-ce que tu vas ranger les vêtements ? Oui, je vais **les** ranger maintenant.
Ungrammatical	Est-ce que tu vas ranger les vêtements ? Oui, je vais ranger maintenant.

Grammatical	Est-ce que tu penses que Charlotte va faire la vaisselle ? Oui, je pense qu'elle va **la** faire maintenant.
Ungrammatical	Est-ce que tu penses que Charlotte va faire la vaisselle ? Oui, je pense qu'elle va faire maintenant
Grammatical	Est-ce que Charlotte présente son travail aujourd'hui ? *Oui, elle **le** présente aujourd'hui.*
Ungrammatical	Est-ce que Charlotte présente son travail aujourd'hui ? *Oui, elle présente aujourd'hui.*

Appendix 6: The test items in the English AJT

Wh-Object question	
Grammatical	To whom do you write? *I **often** write to Simon.*
Ungrammatical	To whom do you write? *I write **often** to Simon**.***
Grammatical	With whom do you go out on Saturday evenings? *I **often** go out with Emily and Amy.*
Ungrammatical	With whom do you go out on Saturday evenings? *I go out **often** with Emily and Amy.*
Grammatical	With whom does Simon return home? *He **always** returns with Francis.*
Ungrammatical	With whom does Simon return home? *He returns **always** with Francis.*
Grammatical	Which instrument does Simon play? *He **frequently** plays the guitar at school**.***
Ungrammatical	Which instrument does Simon play? *He plays **frequently** the guitar at school**.***
Grammatical	Whom does Simon call after dinner? *He **regularly** calls his friends after dinner.*
Ungrammatical	Whom does Simon call after dinner? *He calls **regularly** his friends after dinner.*

When-question	
Grammatical	When do you see your friends? *I **always** see my friends on Saturdays.*
Ungrammatical	When do you see your friends? *I see **always** my friends on Saturdays.*
Grammatical	When does Simon call his friends? *He **frequently** calls his friends.*
Ungrammatical	When does Simon call his friends? *He calls **frequently** his friends.*
Grammatical	When does Simon do his homework? *He **always** does his homework in the morning.*
Ungrammatical	When does Simon do his homework? *He does **always** his homework in the morning*.
Grammatical	When does Charlotte go swimming? *She **always** goes swimming at weekends*.
Ungrammatical	When does Charlotte go swimming? *She goes **always** swimming at weekends.*
Grammatical	When does Charlotte eat in the cafeteria? *She eats **regularly** in the canteen.*
Ungrammatical	When does Charlotte eat in the cafeteria? *She **regularly** eats in the canteen.*
Yes-No question	
Grammatical	Do you think Simon does his homework?

	*Yes, I think he **often** does his homework.*
Ungrammatical	Do you think Simon does his homework? *Yes, I think he does **often** his homework.*
Grammatical	Do you shop at Tesco? *Yes, I **frequently** shop at Tesco.*
Ungrammatical	Do you shop at Tesco? *Yes, I shop **frequently** at Tesco.*
Grammatical	Do you think Charlotte sees her friends? *Yes, I think she **regularly** sees her friends.*
Ungrammatical	Do you think Charlotte sees her friends? *Yes, I think she sees **regularly** her friends*
Grammatical	Do you get bored during your lunch break**?** *No, I **always** have lunch with my colleagues.*
Ungrammatical	Do you get bored during your lunch break**?** *No, I have **always** lunch with my colleagues.*
Grammatical	Does Simon revise his lessons**?** *No, he **always** goes out with his friends*.
Ungrammatical	Does Simon revise his lessons**?** *No, he goes out **always** with his friends*.
Clitics	
Grammatical	Can you buy the gifts today? *Yes, I can buy **them** today.*
Ungrammatical	Can you buy the gifts today?

	Yes, I can buy today.
Grammatical	Is Simon going to pack his suitcase? *Yes, he is going to pack **it**.*
Ungrammatical	Is Simon going to pack his suitcase? *Yes, he is going to pack.*
Grammatical	Is he going to speak to his sister? *Yes, he is going to speak to **he**r this morning.*
Ungrammatical	Is he going to speak to his sister? *Yes, he is going to speak this morning.*
Grammatical	Are they going to recite the poem? *Yes, they are going to recite **it**.*
Ungrammatical	Are they going to recite the poem? *Yes, they are going to recite.*
Grammatical	Does Charlotte see her friends? *Yes, I think she often sees **them**.*
Ungrammatical	Does Charlotte see her friends? *Yes, I think she often sees.*
Grammatical	Are you going to send the letters? *Yes, I am going to send **them** today.*
Ungrammatical	Are you going to send the letter? *Yes, I am going to send today.*
Grammatical	Do you think Charlotte listens to her teacher? *Yes, I think she listens to **her**.*

Ungrammatical	Do you think Charlotte likes her teacher? *Yes, I think she listens*.
Grammatical	Are you going to pack your clothes? *Yes, I am going to pack* ***them***.
Ungrammatical	Are you going to pack your clothes? *Yes, I am going to pack.*
Grammatical	Do you think Charlotte is going to wash the dishes now? *Yes, I think she is going wash* ***them*** *now.*
Ungrammatical	Do you think Charlotte is going to wash the dishes now? *Yes, I think she is going wash now.*
Grammatical	Does Charlotte give her presentation today? *Yes, she gives* ***it*** *today.*
Ungrammatical	Does Charlotte give her presentation today? *Yes, she gives today.*

Appendix 7: The test items in the French production task

Wh-Object condition

Il passe beaucoup de temps avec son chien.

toujours

2) Avec qui est-ce qu'il joue ?

Je vous présente François. François est le meilleur ami de Simon.

toujours

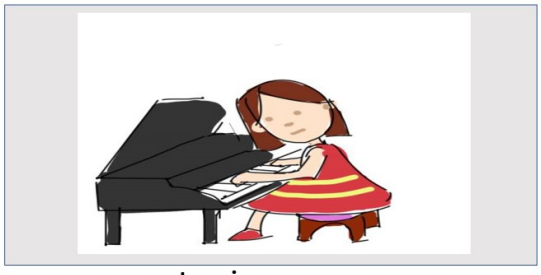
4) À qui est-ce que François parle ?

François est sportif.

toujours

6) Qu'est-ce qu'il fait comme sport?

Charlotte adore la musique.



toujours

14) De quel instrument de musique joue-t-elle ?

Je vous présente Charlotte. Charlotte est la petite sœur de Simon.

souvent

11) Est-ce qu'elle fait du sport le week-end ?

When-question

Simon est studieux.

toujours

3) Quand est-ce qu'il fait ses devoirs ?

François aime aller au cinéma.

régulièrement

5) Quand est-ce qu'il va au cinéma ?

Simon adore manger à la cantine.

fréquemment

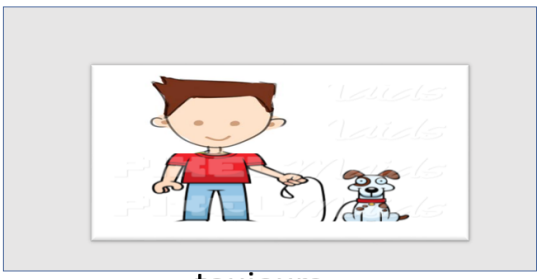
7) Quand est-ce qu'il mange à la cantine ?

Marie-Claire adore passer du temps avec ses enfants.

souvent

22) Quand est-ce qu'elle passe du temps avec ses enfants ?

Simon adore promener son chien le soir.



toujours

24) Quand est-ce qu'il promène son chien?

Yes-No question

Le petit garçon s'appelle Simon. Il adore son chien.

souvent

1) Est-ce qu'il lave parfois son chien ?

Charlotte aime la musique.

souvent

12) Est-ce qu'elle regarde la télé dans ses moments de loisirs ?

Je vous présente Marie-Claire. Marie-Claire est la maman de Simon. Elle aime les sports.

fréquemment

16) Est-ce qu'elle fait de la natation le week-end ?

Je vous présente Jean-Paul. Jean-Paul est le papa de Simon. Il est sportif.

(fréquemment)

18) Est-ce qu'il reste à la maison pendant le week-end ?

Tous les jours, après le dîner, Jean-Paul commence à lire les journaux.

régulièrement

25) Est-ce qu'il lit aussi des romans après le dîner?

Clitics

Simon adore les sandwichs. Il a acheté un sandwich ce matin.

maintenant

8) Qu'est-ce qu'il fait avec ce sandwich ?

Je vous présente Émilie. Émilie est la grande sœur de Simon. Elle a acheté un roman ce matin.

attentivement

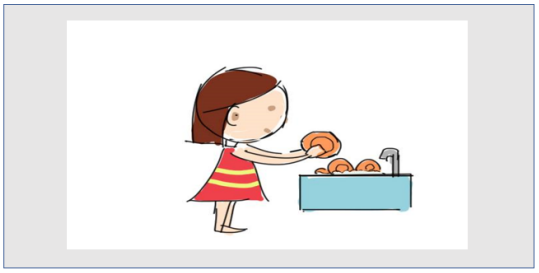
9) Qu'est-ce qu'elle fait avec le roman?

Je vous présente Lisa. Lisa est la meilleure amie d' Émilie. Elle a acheté un chapeau ce matin.

avec joie

10) Qu'est-ce qu'elle fait avec son chapeau ?

Charlotte amène son assiette dans l'évier.



soigneusement

13) Qu'est-ce qu'elle fait avec son assiette ?

Aujourd'hui, c'est l'anniversaire de Simon. Charlotte a acheté un cadeau à son frère. Elle lui donne le cadeau.

immédiatement

15) Qu'est-ce que Simon fait avec son cadeau ?

Aujourd'hui, Marie-Claire a préparé des crêpes.

rapidement

17) Qu'est-ce que Charlotte fait avec les crêpes ?

Je vous présente Robert. Robert est le meilleur ami de Jean-Paul. Il a commandé une tasse de café.

avec plaisir

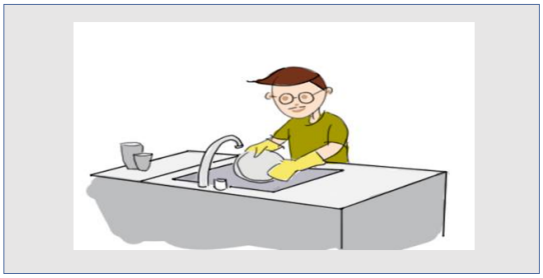
19) Qu'est-ce qu'il fait avec son café ?

D'habitude, Jean-Paul s'occupe de la voiture. Mais aujourd'hui, c'est le tour de Marie-Claire.

soigneusement

20) Qu'est-ce que Marie-Claire fait avec sa voiture ?

D’habitude, Marie-Claire fait la vaisselle. Mais aujourd’hui, c’est Jean-Paul qui fait la vaisselle.



soigneusement

21) Qu’est-ce qu’il fait avec les assiettes ?

Ce soir, Jean-Paul a prépare des pâtes.

rapidement

23) Qu’est-ce que Simon fait avec les pâtes ?

Appendix 8: The test items in the English production task

Wh-Object condition

He spends a lot of time with his dog.

always

2) With whom does he play?

This is Francis. Francis is Simon's best friend.

always

4) With whom does Francis speak?

Francis is sporty.

always

6) What sport does he do?

Charlotte loves music.

always

14) Which instrument does she play?

This is Charlotte. Charlotte is Simon's younger sister.

often

11) What does she do on weekends?

When-question

Simon is studious.

always

3) When does he do his homework in the evening?

Francis likes to go to the cinema.

regularly

5) When does he go to the cinema?

Simon loves to eat in the cafeteria.

frequently

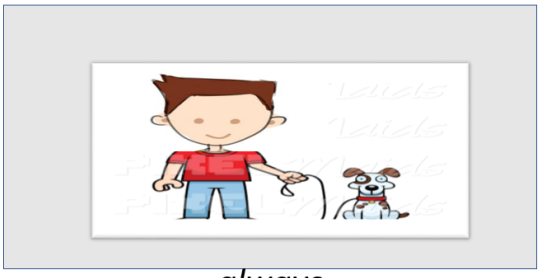
7) When does he eat in the cafeteria*?*

Mary loves to spend time with her children.

often

22) When does she spend time with her children?

Simon walks his dog in the evening.



always

24) When does he walk his dog?

Yes-No question

This is Simon. He loves his dog.

often

1) Does he sometimes bath his dog?

Charlotte loves music.

often

12) Does she watch TV in her free time?

This is Mary. Mary is Simon's mother. She loves sports.

frequently

16) Does she go swimming at weekends?

This is John. John is Simon's father. He loves sports.

frequently

18) Does he spend the weekend at home?

Every day, after his dinner, John loves reading.

regularly

25) Does he read novels after dinner?

Clitics

Simon bought a sandwich this morning.

now

8) What does he do with this sandwich?

This is Emily. Emily is Simon's elder sister. She bought a novel this morning.

carefully

9) What does she do with the novel?

This is Lisa. Lisa is Emily's best friend. She bought a hat this morning.

now

10) What does she do with her hat?

Charlotte takes her plate to the sink.

carefully

13) What does she do with her plate?

Today is Simon's birthday. Charlotte gives a gift to Simon.

immediately

15) What does he do with the gift?

Today, Mary made pancakes.

quickly

17) What does Charlotte do with the pancakes?

This is Robert. Robert is John's best friend. He ordered a coffee.

quickly

19) What does he do with his coffee?

Usually, John takes care of his car. However, today, it's Mary's turn.

carefully

20) What does she do with the car?

Usually, Mary washes the plates. However, today, it's John's turn.

carefully

21) What does he do with the plates?

Today, John cooked pasta.

quickly

23) What does Simon do with the pasta?