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## The acquisition of adverbs in child L3 French in Canada

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This paper<sup>1</sup> focuses on the acquisition of adverbs in French L3 and aims to identify the possible role of transfer in this particular linguistic context. The data come from children born in Canada who speak Romanian as a heritage language and are exposed to English as the societal language as well as to French (L3) in school. The variable under scrutiny is the position of adverbs in light of Cinque's (1999) universal hierarchy. The results indicate that children have nativelike competence for adverb placement in the three languages; however, some non-convergent uses arise in French signaling possible transfer of other parametric settings from Romanian. We suggest that this is a case of non-facilitative transfer due to structural similarity between Romanian and French.

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## 1 Introduction

The acquisition of word order with respect to adverb placement was shown to be difficult in second (L2) and third language (L3) acquisition, but generally successful in early monolingual or simultaneous bilingual acquisition (however, studies of this phenomenon in L1 or 2L1 remain scarce; Prévost 2009). Adverb placement shows variability in an individual's L2/L3 at various stages of acquisition and this has been traced back to influence (i.e., *transfer*) from previously acquired language(s) (Ayoun 1999; Herschenson 1999; Hermas 2010; Balcom & Bouffard 2015). L3 acquisition presents an interesting context for the investigation of adverb placement as there are two possible languages that may influence it: several competing models attempt to predict which language acts as the source of influence in L3. The study of L3 adverb placement can therefore contribute useful data to this discussion.

This paper aims to identify the role of transfer in the context of L3 acquisition by looking at the acquisition of adverbs in three languages: Romanian, English and French. The data come from children born in Canada who speak: (i) Romanian as a heritage language; (ii) English as the language of the majority context and as a school language and (iii) French as L3 in school. This study provides information on the nature and the extent of the interaction between the three languages. The questions addressed are: (i) what is the placement of adverbs in the three languages under study? and (ii) does non-convergent use of adverbs occur and if yes, what kind of interaction between the three languages may account for these errors? Specifically, the variable of interest is the position of adverbs in the child's grammar of each language according to Cinque's (1999) hierarchy. We find that the children's non-convergent use of adverbs in L3 does not arise from the faulty acquisition of the adverb hierarchy but has to do with the parameter of discourse fronting which accounts for the misplacement in the surface word order. We suggest that this is non-facilitative transfer due to the structural similarity between Romanian and French in the domain of the discourse fronting parameter.

This study belongs to the relatively small but new trend in which knowledge is tested/investigated in all languages of the L3 learners (e.g., Na Ranong & Leung 2009; Santos 2013). Puig-Mayenco et al. (2020) explained the usefulness of such an approach in their methodological synthesis. Specifically, the main advantage of investigating a particular domain of inquiry in a speaker's three languages is that researchers are able to ensure that learners have acquired distinct representations in each of their previous languages: "testing each participant's competence for the specific grammar domain of interest in all three languages, in order to know the actual state of linguistic representations available for L3 transfer, is also crucial" (Puig-Mayenco et al. 2020: 41). This is particularly important in the present study, where speakers' L1 is a heritage language

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susceptible to differences in the input that serves as a baseline for language acquisition (Polinsky & Scontras 2020).

The paper is organized as follows: Section 2 summarizes the literature while section 3 serves as the theoretical background and articulates the research questions as well as the hypotheses. Methodological information including the participants and corpus for this experiment is presented in Section 4. Section 5 presents the results of the corpus search along with examples of acquisition errors. Lastly, Section 6 contains a discussion of these results with respect to the issue of transfer during L3 acquisition.

## **2 Previous studies on the acquisition of adverbs in French L2/L3**

The basic position for all verb oriented adverbs in French is subject-verb-adverb-object order (SVAdvO). Other positions, such as subject-adverb-verb-object (SAdvVO) are ungrammatical, while still other positions are confined to certain prosodic contexts. From the L2 acquisition literature, we learn that child and adult L2 learners of various languages and various proficiencies show some sensitivity to target language-specific adverb placement restrictions and interpretations. However, data also show that cross-linguistic influence is attested (White 1991), and that L2 learners of French (English L1), respond significantly more often than native speakers with the adverb in sentence-final position (Herschenson 1998; 1999) or present low accuracy on the ungrammatical \*SAdvV sequence in a grammaticality judgment task (Ayoun 1999; Herschenson 1998, 1999; Stadt 2016), presumably due to the influence of English. Enhanced exposure followed by feedback and error correction appears to be essential for the mastery of adverbial placement (Schlyter 2005). As L2 proficiency increases, the errors of adverb placement decrease (Ayoun 1999; Leung 2002), although the mismatch between meaning and adverbial placement may persist (Park 2013).

Leung (2002; 2006) investigated verb placement with respect to adverbs by L1 Vietnamese and Cantonese speakers who spoke beginner-level French as L2 or L3, respectively. L3 learners had English as their L2. Results are similar for L2 and L3 French in both a preference and a sentence completion task, showing that accuracy was better in the sentence completion task (production) for both groups. In this task, most L2 and L3 French learners achieved an accuracy rate of 65% or higher. In the preference task (PT), both groups of L2 and L3 learners scored at chance level, showing variability with respect to the grammatical SVAdvO and the ungrammatical \*SAdvV orders (accuracy scores between 40% and 60%). Individual results showed that the L2 French group had a strong preference for the \*SAdvV order. The L3 French group showed intra-group variation: “in the preference task, although quite a few of the L3 subjects indeed showed variability, an even higher proportion of the L3 group achieved target-like performance (i.e., with a higher than 75% accuracy rate), consistent with production data” (Leung 2002: 180). The results are interpreted as non-facilitative transfer from L1 Vietnamese to L2 French and from L2

English to L3 French. Although, in the case of L3 French, both Chinese L1 and English L2 could be responsible for transfer resulting in preference for the \*SAdvV order, the author proposes that the influence comes from the English syntax rather than from the Chinese surface word order.

L3 acquisition of adverbs was further undertaken in studies by Hermas (2010) (and re-examined later in Hermas, 2014), which investigated L3 English acquisition by adult L1 speakers of Moroccan Arabic (MA) with French as their L2. The participants were beginner learners of L3 English, and their L2 French varied between post-intermediate and advanced levels. The tasks administered consisted of an acceptability judgment task (AJT) and a PT, where the display time was controlled according to native speaker norms. They investigated the setting for the verb movement parameter in relation to adverb placement and negation. With respect to adverb placement, the study found that both the L3 and the L2 were influenced by speakers' L1, because the adverb placement varied on the pattern of their L1. MA allows two structures with frequency adverbs: SAdvVO like English where the adverb is base-generated to the left of TP and SVAdvO similar to French where it is base-generated to the left of VP. Hence the language scenario between the three languages is  $L1 \neq L2 \neq L3$  for the verb movement parameter. English and French license one sequence and are a subset of MA that licenses two. In particular, the L2-advanced participants achieved accuracy rates comparable to the French native speakers, accepting SVAdvO and rejecting \*SAdvVO. But the post-intermediate L2 learners did not achieve the same accuracy level and showed non-facilitative influence of L1 Arabic, accepting \*SAdvVO. However, the difference in the learners' L2 proficiency was not reflected in their performance in L3 English. They accepted both sequences as seen in the L1, incorrectly sanctioning ungrammatical SVAdvO in the L3.

Balcom & Bouffard (2015) tested the acquisition of the position of aspectual adverbs before and after enhanced instruction in two groups of L3 French learners who had Emirati Arabic as their L1, and intermediate competence in L2 English. Aspectual adverbs are optionally preverbal in Emirati Arabic and obligatorily so in English, while post-verbal in French. Both groups started with a beginner level in L3 French and no previous formal instruction in that language. Only one group was provided explicit instruction with abundant and frequent input of adverbs. Through an AJT and a task in which participants had to reorder scrambled sentences, the study found that explicit teaching with enriched input targeted on this structure had a positive effect on learning in that, after instruction, the treatment group managed to accept and produce more target-like word order (SVAdvO) than before instruction. However, the treatment group showed intra-group variation, with about 60% of participants still accepting and producing the non-target SAdvVO order, and one-third having native or native-like performance. As a group, the treatment group preferred the incorrect order (\*SAdvVO) in about 50% of cases even after instruction. The authors interpreted this as non-facilitative influence from Emirati Arabic (the preferred order) and L2 English.

Finally, in another relevant study comparing secondary school students intermediate French learners in different programs of English L2, Stadt et al. (2016) showed that English L2 has a more important influence when more prevalent in the input. Specifically, in a grammaticality judgment task, the authors compared Dutch L1 participants learning L3 French with a different input quantity and quality in L2 English. They show that L3 French is influenced by L2 English at intermediate stages of learning when input in L2 English is enhanced through immersion education. The participants in the English immersion program misjudged the incorrect order (\*SAdvVO) around 42% of the time, which was less than participants in the regular bilingual Dutch-English program.

From the studies reviewed above, we can draw the following conclusions regarding the acquisition of adverb placement in L2/L3 French: first, given the combination of languages, all previous studies found L2/L3 French to have, to varying degrees, some preference for the ungrammatical \*SAdvVO word order, especially in the beginning and intermediate stages. This is interpreted as the result of non-facilitative influence from the source language. Depending on the source language, the non-facilitative transfer is at the level of verb movement (verb in-situ due to transfer of weak features in T when the source language is English or Vietnamese) or at the level of representation (additional site of base generation of the adverb when the source language is Arabic). Clause-final placement of the adverb is also attested, and although in most cases there is cross-linguistic influence to be traced back from the background language (usually English), sometimes this non-convergent placement does not find an explanation (Herschensohn 1998; 2009; Hancock & Sanell 2009).

Moreover, variability of the grammatical and ungrammatical orders is widely attested, with convergent and non-convergent word orders coexisting in the data obtained from at least some participants. When the source language does not present such variation, this is taken as retention of the non-facilitative transfer into the interlanguage grammar. Variation in adverb placement in the source language is proposed to transfer into the L2/L3. Lastly, there is variation among the participants (intra-group variation), even when they are considered to be a homogenous group: some participants show target-like behaviour, others show variability, while others show non-acquisition. We must also note that beside non-facilitative transfer of the verb in-situ setting, transfer of the opposite setting is also possible: verb movement is assumed to transfer to L3 (English) when the L1 is a language with verb movement (e.g., Arabic).

### **3 Theoretical background**

#### **3.1 Hypotheses regarding transfer in third language acquisition**

Hypotheses regarding language interaction or transfer in L3 vary greatly depending on the language, the linguistic domain and the theoretical approach within which the empirical research is conducted. While some studies suggest that the L1 is a default source of transfer to the L3

(Lozano 2003; Na Ranong & Leung 2009; Hermas 2010; 2015), others indicate that L2 has a privileged status (Bardel & Falk 2007; Bardel & Sanchez 2017). Both these models, while having distinct hypotheses, are based on the biological status of L1 vs. L2. Specifically, the L1 Status Model considers that the native language has a privileged status as a source of transfer, while the L2 Status Model is grounded in the difference between the memory sources: L2, as L3, is sustained by declarative memory and learning is similarly based on explicit knowledge. The profile of our participants presents a challenge for these models: while Romanian is the native language learned first from a chronological point of view, it is also the heritage language, used mostly at home, typically with a restricted number of family members, and with scarce school support. Moreover, English, even though chronologically learned second, as the majority language, it is the language used in the widest settings, with diverse input sources. Our participants often identify English as their stronger language and our production measures detailed in section 4.3 confirm English to be the dominant language. As such, English could be considered as another L1.

One approach that considers both L1 and L2 roles in transfer is the Cumulative Enhancement Model which predicts that both L1 and L2 can transfer to L3, but only when this transfer is facilitative (Flynn et al. 2004; Berkes & Flynn 2012). Two current models advance the idea of transfer from either background language: the Typological Primacy Model (Rothman 2013; 2015) and the Linguistic Proximity Model (Westergaard et al. 2017). According to the Typological Primacy Model, elaborated for the initial stages of L3 acquisition, typological similarity is based on overall perceived proximity between the languages' lexicons, phonology, morphology and (surface) syntactic structures. Typological similarity can be the source of both facilitative and non-facilitative influence. In the Linguistic Proximity Model (Westergaard et al. 2017), the predictive factor for transfer (both facilitative and non-facilitative) is *structural similarity* (or *proximity*) between properties and aspects in languages, regardless of whether the languages are overall typologically close or not. We are going to elaborate below on this latter model since it pertains to more advanced stages of acquisition, while the Typological Primacy Model aims mainly at explaining transfer in the initial stages of L3 acquisition.

The two main features of the Linguistic Proximity Model are the following: cross-linguistic influence can be facilitative and non-facilitative and it is based on certain similarities between the L3 and either of the previously learned languages, irrespective of their order of acquisition. *Structural similarity* refers to the similarity between abstract linguistic properties as opposed to surface word order and it can obtain between languages which are either typologically similar or typologically distant. Facilitative influence is the result of strict structural similarity between computations. For example, Westergaard et al. (2017) show that in the acquisition of L3 English, the previously acquired languages, Norwegian and Russian, are different with respect to the V2 property in declarative sentences. Russian, like English, does not have the V2 property, while Norwegian does. The V2 order is assumed to result from verb movement across the adverb to the

second position. Comparing L2 English (L1 Russian), L2 English (L1 Norwegian) and L3 English (2L1 Russian and Norwegian), the results show similar and more target-like performance for L2 and L3 participants who had Russian as one of their previously acquired languages. This result is interpreted as facilitative influence based on the strict structural similarity between English and Russian with respect to the V2 property. However, as far as general typological similarity is concerned, these two languages, English and Russian, are further apart than English and Norwegian.

Studies on non-facilitative influence in bilingualism in general and in L3 acquisition in particular are numerous, and attest that this type of transfer is a robust phenomenon (Rothman et al. 2019; Puig-Mayenco et al. 2020). According to Westergaard et al. (2017), non-facilitative influence happens “when learners misanalyse L3 input (and/or have not had sufficient L3 input), and mistakenly assume that a property is shared between the L3 and either or both of the previously acquired languages” (Westergaard et al. 2017: 671). How does the mistaken assumption of shared properties between two languages relate to the structural similarity approach to transfer? Westergaard et al. (2017) do not explicitly discuss this, but they give the example of non-facilitative influence from Norwegian (a V2 language) to English (a non-V2 language), in the form of transfer of verb movement from Norwegian (a V2 language) to L2 English. While contemporary English is considered a non-V2 language, “earlier versions of English had certain V2 properties” and this order “survives as a rule inverting subjects and auxiliaries in questions” (Roberts 1996; Westergaard 2007). However, in declarative clauses, English does not have V2 and therefore the order with respect to adverbs is adverb-verb. Influence of Norwegian to English is predicted to be both facilitative (facilitating subject-auxiliary inversion) and non-facilitative (resulting in the ungrammatical verb raising past the adverb). This amounts to saying that learners are predicted to overgeneralize the V2 property of Norwegian even in declarative clauses, a context where this is ungrammatical in English, and the influence is predicted to happen from a more comprehensive system to a more restricted one. As we will see in Sections 3.2.2 and 3.2.3, French as L3 presents important structural overlap (similarity) with both Romanian and English in the domain of verb movement and discourse fronting, the properties that are directly relevant for adverb placement (linearization).

## **3.2 The syntax of adverbs across languages**

This section presents the parametric settings for verb movement and discourse fronting in the adult grammars of the standard varieties of the three languages. The participants of this study were most likely exposed to such varieties in the school environment for English and French. Romanian displays no such syntactic variations between standard and regional varieties.

### **3.2.1 A universal adverb hierarchy**

Cinque (1999) argues that certain types of adverbs have designated slots for their first merge on the clausal spine, much in the way verbs and arguments do. A universal hierarchy is proposed







An outline of verb movement in Romanian is in order for a clearer contrast with English. The standard diagnostic test is the linearization of the adverb *deseori* ‘often’ and of the subject in situ. The adverb is merged in the TP field, as  $Asp_{\text{frequentative}}$  in (3), whereas the subject is merged in Spec,vP as external argument (loosely equivalent to VoiceP in (3)). As either item may appear post-verbally, it means that the verb moved to a higher position. This is shown in (4) for simple and complex tenses as well as for infinitive forms in infinitive clauses.<sup>2</sup> The past participle also moves, above *bine* ‘well’ in VoiceP, as shown in (4e).

- (4) a. *Ne telefonează deseori aceeași persoană.*  
 us phones often same person  
 ‘The same person often phones us.’
- b. *Ne-a telefonat deseori aceeași persoană.* vs. *\*Ne-a deseori telefonat...*  
 us-has phoned often same person us-has often phoned  
 ‘The same person has often phoned us.’
- c. *Ne va telefona deseori aceeași persoană.* vs. *\*Ne va deseori telefona...*  
 us will phone often same person us will often phone....  
 ‘The same person will often phone us.’
- d. *Maria a venit [înainte de a-i telefona eu.]* vs. *\*înainte de a eu-i telefona.*  
 Maria has come before DE to-her phone I before DE to I-to-her phone  
 ‘Maria has come before phoning her.’
- e. *[Odată odihnită bine], s-a apucat de lucru.* vs. *\*Odată bine odihnită...*  
 once rested well REFL-has started of work once well rested  
 ‘Once well rested, she started her work.’

Generalized verb movement in syntax (vs. PF) is the key factor that accounts for canonical VSO in Romanian, as well as the possibility of licensing Nominative subjects in non-finite clauses (e.g., infinitive clause in (4d), but also with gerunds and past participles in small clauses).<sup>3</sup>

English has the opposite settings for verb movement, with generalized verb in situ (i.e., within vP). Hence, the same adverb, base-generated in the same AspP, systematically surfaces in preverbal positions, as visible in the translations to (4). Predictably, the licensing of Nominative subjects in Spec,vP is also illicit.

<sup>2</sup> A further peculiarity of Romanian is the clitic status of auxiliary verbs and of some adverbs: both items procliticize on the verb and trigger obligatory adjacency both in syntax and at PF. However, the clitic status of the auxiliary is not what triggers verb movement: the licensing of subjects in situ is the main trigger; see Alexiadou & Anagnostopoulou (1998) and Alboiu (2002).

<sup>3</sup> SVO is also possible in Romanian as a derived word order (e.g. through the left dislocation of subjects) as explained in the next section.

French, on the other hand, shows mixed parametric settings for verb movement: although simple finite verbs move to T on a systematic basis, past participles (in complex tenses) and infinitive verbs remain in situ (Pollock 1989). Overall, the setting for verb movement in French resembles Romanian insofar as finite verbs obligatorily move to T. However, the main verbs of complex tenses and the verbs of infinitive clauses remain in situ, as in English (with a note that infinitive verb movement is not always excluded in French L1). Predictably, VSO is excluded as long as it implies subjects in situ.

Thus, when it comes to the interaction between verb movement and adverb placement, *souvent* ‘often’ surfaces post-verbally to simple finite verbs, on a par with Romanian, but in-between auxiliary and main verbs in complex tenses, as in English. The cross-linguistic contrast arises from comparing French (5) to Romanian in (4) above.

- (5) a. *Il nous appelle souvent.* vs. *\*Il souvent nous appelle.*  
 he us calls often                    he often us calls  
 ‘He often calls us.’
- b. *Il nous a souvent appelé.* vs. *#Il nous a appelé souvent.*  
 he us has often called            he us has called often  
 ‘He has often called us.’
- c. *Il va souvent nous appeler.* vs. *#Il va nous appeler souvent.*  
 he will often us call                he will us call often  
 ‘He will often call us.’

The “#” indicates that the word order is accepted in certain contexts, especially when the intonation signals right dislocation for the adverb and two (vs. one) prosodic units.

In a nutshell, verb movement is generalized for completely opposite settings in Romanian and English (either systematically raising or systematically non-raising out of vP), whereas French displays mixed parametric settings, albeit systematically divided according to the finite vs. non-finite inflection of the verb. Adverb linearization is predictable in relation to the position of verbs as long as the adverb remains in situ, in the slot indicated in Cinque’s hierarchy. However, on par with any other constituents, adverbs can be submitted to fronting, and so can vPs in relation to an adverb in situ. Such constituent movements are generally discourse motivated, and are overviewed in the next section.

### 3.2.3 The discourse fronting parameter

All three languages allow constituent dislocations for discourse purposes. However, the types of operations that support these dislocations are significantly different. Hence, we identify and explain the discourse fronting parameter below.

Romanian is classified as a *discourse configurational* language (Kiss 1995), meaning that “free” word order is a matter of routine. That is, although the basic word order in the language is VSO, dislocations to the left are routinely applied to move constituents to topic or focus positions, resulting in SVO, OVS, OSV etc.<sup>4</sup> All these dislocations are of a non-quantificational type (i.e., they may co-occur with *wh*-movement; see (6) below) and may involve chains with resumptive clitics (CLLD for objects). There is no dislocation through clefting or quantificational chains in this language.

English and French do not qualify as discourse configurational languages, since SV is obligatory, unless V-to-C applies. For the dislocation of constituents, English displays opposite properties to Romanian insofar as it obligatorily resorts to topicalization (i.e., the dislocation cannot co-occur with *wh*-movement; see (6)) or clefting. French, on the other hand, displays mixed patterns: it dislocates arguments to topic positions through resumptive clitic chains (CLLD), on a par with Romanian, but it allows only for clefting, like English, when dislocation to contrastive focus applies. This situation replicates the pattern of parametric settings outlined for verb movement: while Romanian and English opt for opposite settings for discourse fronting (+ or – quantificational chains), French displays mixed settings, depending on the discourse trigger.

Adverbs may undergo fronting for discourse purposes in all three languages. Since resumptive clitics are not possible with adverbs, the distinction between the type of dislocations (i.e., +/– quantificational chain) can be tested in the presence of *wh*-movement. For example, while maintaining one prosodic unit (i.e., one sentence pitch, no intonational breaks), Romanian allows for constituents (including AdvP) that move to topic or other high positions to precede *wh*-phrases (hence, non-quantificational chains), as in (6a), whereas English and French do not (hence, quantificational chains), as in (6b, c).

- (6) a. *Maria unde nu s-a dus?* Romanian  
 Maria where not REFL-has gone  
 ‘Where did Maria not go?’  
*Încă unde nu s-a dus?*  
 yet where not REFL-has gone  
 ‘Where has she not gone yet?’  
*Maria încă unde nu s-a dus?*  
 Maria yet where not REFL-has gone  
 ‘Where did Maria not go yet?’

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<sup>4</sup> We do not discuss the dislocations to the right since, according to Kayne (1994), any dislocation takes place to the left even when the dislocated item surfaces in clause final position (after Remnant movement applies).

- b. \**Maria yet where has she not gone?* English
- c. \**Marie encore où est-ce qu'elle n'est pas allée?* French  
 Marie yet where is-this that-she not is not gone

Accordingly, if there are instances where children erroneously locate the adverb in sentence initial or high position in French, it is important to distinguish between adverb topicalization and adverb base generation, and establish both hierarchical and surface (dis)similarities reflected in the word order (e.g., on the surface, subject-adverb-verb is possible in both Romanian and English, albeit as the result of different structures).

### 3.3 Research questions

This paper focuses on the L3 acquisition of modal and aspectual adverbs by school-age bilingual children (Romanian and English) who learn French as an L3 in school immersion programs. The research questions are as follows:

- (i) How is adverb placement learned in a French L3 setting?
- (ii) What is the contribution of the background languages, Romanian and English, to the acquisition of French L3? Specifically, do we see non-convergent word order involving adverbs and, if yes, does transfer play a role in these? If so, what is the source of transfer?

The assessment of adverb placement takes into account parametric settings, namely verb movement and the possibilities for dislocations under discourse triggers (when the adverbs do not surface in their first merge position). The objectives are to determine if there is transfer and if there is, the source, the direction and the type of transfer, as well as to identify the theoretical L3 model that may most adequately account for the data.

As the three languages abide by Cinque's hierarchy in (1), we expect the hierarchy to be well acquired by the children in all three languages. With respect to French L3, if non-convergent linearization of adverbs occurs, it should be the result of differences in parametric settings concerning verb movement and/or discourse fronting. These parameters display opposite settings in Romanian and English, the background languages. In the domain of verb movement, influence from Romanian would mostly show as facilitative influence on finite verb movement in French (correct SVAdv order), and possibly non-facilitative influence on non-finite verb movement (incorrect SVAdv order). Influence from English will predict finite verbs in-situ (incorrect SAdvV order). In the domain of discourse fronting, influence from either Romanian or English could result in adverbs being placed in various positions within the sentence. The influence of one or the other language has to be determined on a case-by-case basis. However, note that Romanian is the language with the most comprehensive setting, with routine dislocations, and, according

to the definition of transfer under structural similarity, the source of non-facilitative influence in French L3.

## 4 Methodology

This section provides information on the participants in this study<sup>5</sup> and the contents of our corpus. This study includes 15 participants, each of whom completed a story narration task in each of their three languages.

### 4.1 Participants and data collection

The 15 participants in the study are children of Romanian immigrants who were born and raised in Canada. These children were raised in a Romanian monolingual environment at home, but within an Anglophone community: the Greater Toronto Area. The age bracket for the participants is 8 to 11 years old, and thus, children in both elementary and middle school participated in this study.

The children were recruited through an online call in the Romanian community. Participants were selected for their shared linguistic history, based on a telephone screening with their parents: they were exposed to the heritage language (Romanian) almost exclusively until the age of 4, at which point they started attending Ontario's two-year English kindergarten consisting of Junior Kindergarten and Senior Kindergarten. At the age of 6, all participants registered in Grade 1 French immersion programs. From Grade 1 to Grade 3, the children were taught exclusively in French. Starting in Grade 4, the year in which they turned 9, the children received equal instruction in both English and French. While the children used English in the broader community and for part of the day in school, their use of French was restricted to an academic context since none of the parents spoke French. Both parents of each child were native speakers of Romanian (children who did not fit this profile were excluded from the study.) The children continued to speak Romanian at home and some attended Romanian Saturday School. Thus, the participants had approximately equal time exposure to Romanian and English, but differed with respect to their exposure to French, according to their age: the 8- and 9-year-old children had 2–3 years of exposure ( $n = 7$ ); the 10- and 11-year-old children had 4–5 years of exposure ( $n = 8$ ) (see **Table 1**). Since the age of the children is directly linked to the years of exposure, we provide only the age of each child for the data we analyse in this paper. We used the scores of three production measures to ensure that these children form a homogenous group (see Section 4.2).

Data collection took place individually, at the participants' homes, with an experimenter directing the child to narrate the stories. Data was elicited using *The Frog Series* (Mayer 1967; 1974; Mayer & Mayer 1975) illustrations. The stories were elicited in all three languages in order

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<sup>5</sup> This study was approved by the Office of Research Ethics, University of Toronto.

Participants	Age	Years of French Instruction
N	8;07	2
S	8;09	2
G	8;09	2
A	8;10	2
J	8;10	2
R	9;07	3
M	9;10	3
Ma	10;0	4
L	10;09	4
Al	11;0	4
Ad	11;02	4
An	11;05	4
Lu	11;08	5
And	11;09	5
Ano	11;10	5

**Table 1:** Participants' age and years of instruction in French.

to obtain production measures and examples of adverb use in each language. Testing intervals were one to two weeks apart and the order of the languages tested was counterbalanced. A different booklet was chosen for each language in order to avoid task fatigue or practice effects, but all booklets had similar levels of complexity. There were different experimenters for different languages. The experimenter first allowed the child to look through the pages of a booklet containing images that depict a story.<sup>6</sup> Then, the child was asked to narrate the story out loud based on the images on each page of the booklet. Short prompts were sometimes used (e.g., “And what do you see here?”, “What happened afterwards?”, “What else happens here?”). Each child was audio recorded and each production sample is approximately 10 minutes in length.

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<sup>6</sup> Pre-test planning time is important as it promotes structural complexity and lexical sophistication but also accuracy (Skehan & Foster 2012).

The recordings were transcribed and coded using the SALT data transcription system<sup>7</sup> by native or native-like transcribers in each language. Each transcription was verified by one person other than the transcriber.

## 4.2 Corpus

The size of the corpus is measured in T-units (terminable units) distributed as shown in **Table 2**. The segmentation in T-units follows *The Edmonton Narrative Norms Instrument (ENNI)*. This instrument was developed for the purpose of analyzing narratives in the context of clinical

Participants	Age	RO T-units	EN T-Units	FR T-units
N	8;7	55	50	41
S	8;9	46	49	49
G	8;9	73	38	40
A	8;10	45	45	23
J	8;10	56	80	67
R	9;7	90	129	80
M	9;10	64	42	35
Ma	10;0	60	86	51
L	10;9	64	78	41
Al	11;0	63	50	62
Ad	11;2	80	75	71
An	11;5	58	43	46
Lu	11;8	83	49	42
And	11;9	123	142	92
Ano	11;10	57	68	54
TOTAL		1017	1024	794

**Table 2:** Size of the corpus.

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<sup>7</sup> Systematic Analysis of Language Transcripts Research Version 8 software (Miller & Chapman 2000).



assessment. T-units are sentences that can stand alone. One T-unit is one independent clause including any dependent clauses that are contained in or attached to it. The following do not count as T-units: utterances such as “Yes”, “Okay”, “Please”, “the more the merrier”, partial sentences in response to a question or verbless utterances.

We can see from **Table 2** that the corpus size is comparable in Romanian and English, but smaller in French.

### 4.3 Language production measures

We used measures of production complexity and accuracy to evaluate the global performance of the participants across languages and in relation to their age. In this study we opted for what Unsworth (2008), drawing on previous research, calls an “in-house assessment”. These are measures applied to a speech production sample (e.g., picture description task or, in our case, a narration task) covering verbal density, Guiraud’s index and the rate of error-free utterances. Previous research shows that “greater complexity and accuracy have been associated with a more elaborate and sophisticated L2 knowledge system related to representation and restructuring (or development) of the interlanguage [...]” (Michel, 2017: 3). Verbal density is considered an alternative measure of morphosyntactic complexity to MLU scores and it is calculated as the average number of finite and non-finite verbs per T-unit. Guiraud’s index or ‘Indice de richesse’ measures lexical diversity and it is a better alternative than the traditional Type/Token Ratio, because it increases over time, and it is not affected by sample size. It is calculated by dividing the number of types by the square-root of the number of tokens (Unsworth 2008). Accuracy was calculated as the number of error-free utterances (T-units) divided by the total number of utterances. Calculated this way, accuracy “refers to target-like-use of language, i.e., error-free speech [...], and measures the amount of deviation from the norm.” (Michel 2017: 8 and references therein). In our case, the norm was considered to be native speaker usage; two native or native-like speakers evaluated accuracy for each language, and only the utterances that were classified as accurate by both judges were included. The results are shown in **Table 3**.

The data is not normally distributed and it could not be normalized. We applied the non-parametric Friedman test. For each of the three scores, there are significant differences between languages. For verbal density, Romanian has significantly lower scores than the scores for English and French (Romanian–French,  $Z = -2.8$ ,  $p = .005$ ; Romanian–English,  $Z = -2.9$ ,  $p = .003$ ). For Guiraud’s index, French has significantly lower scores than the scores for Romanian and English (French–Romanian,  $Z = -2.6$ ,  $p = .008$ ; French–English,  $Z = -3.1$ ,  $p = .002$ ). For the measure of error-free utterances, English has the highest score and is significantly different from both Romanian ( $Z = -2.6$ ,  $p = .008$ ) and French ( $Z = -3.4$ ,  $p = .001$ ). Across all measures and all age brackets, children have the highest scores in English. Importantly, all production errors indicate optionality, insofar as a child produces the same construction with or without errors in the same language.

	Romanian			French			English		
	Mean	Range	SD	Mean	Range	SD	Mean	Range	SD
Verbal density	1.39	1.19–2.09	0.21	1.59	1.28–2.19	0.26	1.74	1.47–2.49	0.28
Guiraud's index	6.43	4.95–7.95	0.73	5.71	4.3–7.53	0.89	6.88	6.21–7.78	0.62
Error-free utterances	0.7	0.47–0.92	0.14	0.56	0.35–0.87	0.13	0.84	0.63–0.98	0.08

**Table 3:** Comparing language production scores across the three languages.

A Spearman correlation was applied to determine whether age was a factor in the resulting scores. Across languages and measures, there were no significant correlations between age and any of the three measures<sup>8</sup>. We therefore concluded that we can group the children together for the analysis of the modal and aspectual adverbs.

In the next section, we present the results and in Section 6 we assess the results in our corpus for each language. We compare the adverb location in children's narratives in the three languages to assess possible non-convergent linearizations and to establish the type of interactions that may have caused them.

## 5. Results

This section quantifies the distribution of adverbs in the corpus in order to provide general information on the productivity and error margins in this area. The non-convergent placement is further detailed by type of adverb and individual child production.

### 5.1 Distribution of adverbs

First, **Table 4** presents all the adverb occurrences by child and by language and their totals. This table counted all the adverbial occurrences ("Total Adverbs"), as well as those that figure in Cinque's hierarchy ("Total Target").

The results show that the highest overall adverb production is in Romanian, while the lowest is in French. Adverb occurrences are also more uniform across children in Romanian

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<sup>8</sup> Test results for Romanian: Verbal density  $r_s = -.101$ ,  $p = .719$ ; Guiraud's index  $r_s = -.132$ ,  $p = .638$ , Error-free measure  $r_s = .102$ ,  $p = .717$ ; for English: Verbal density  $r_s = .106$ ,  $p = .707$ , Guiraud's index  $r_s = .156$ ,  $p = .580$ , Error-free measure  $r_s = .007$ ,  $p = .980$ ; for French: Verbal density  $r_s = .049$ ,  $p = .861$ , Guiraud's index  $r_s = -.023$ ,  $p = .934$ , Error-free measure  $r_s = .301$ ,  $p = .276$ .

Participant	Age	Romanian Total	English total	French total
N	8;7	29	5	16
S	8;9	27	7	42
G	8;9	26	5	7
A	8;10	31	7	10
J	8;10	22	39	12
R	9;7	39	30	28
M	9;10	17	20	12
Mar	10;0	56	24	23
L	10;9	8	7	7
Ax	11;0	24	13	15
Ad	11;2	21	54	28
An	11;5	24	4	8
Lu	11;8	38	1	14
And	11;9	44	93	64
Ano	11;10	20	15	21
Total Target		101	176	72
Total Adverbs		426	324	307

**Table 4:** Size of the overall adverbial corpus and distribution.<sup>9</sup>

(except for the child *L*) than for English and French, where adverb production is variable, with some children producing very few adverbs (as low as one adverb), and others producing many adverbial occurrences. The child *L* produces a very low number of adverbs across all languages.

On the other hand, **Table 5** quantifies only the adverbs of Cinque's hierarchy, as distributed per child: the modal and aspectual adverbs that merge in the vP (i.e., from Voice to Asp<sub>completive II</sub>) and the TP (i.e., from T<sub>past</sub> to Asp<sub>completive I</sub>) fields. In this group, the lowest production is also in

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<sup>9</sup> Tables 13 and 14 in the Appendix 2 present all the adverbs found in the corpus classified by type.

Participant	Age	Romanian	English	French
N	8;7	16	3	6
S	8;9	11	4	9
G	8;9	3	0	3
A	8;10	2	1	2
J	8;10	4	16	3
R	9;7	10	17	10
M	9;10	6	7	3
Mar	10;0	13	19	2
L	10;9	1	1	4
Ax	11;0	5	10	4
Ad	11;2	12	36	5
An	11;5	4	2	1
Lu	11;8	3	1	2
And	11;9	10	48	13
Ano	11;10	1	11	5
TOTAL		101	176	72

**Table 5:** Distribution of the adverbs in Cinque's hierarchy.

French. Overall, the distribution of these adverbs is variable across children in every language, with French more uniformly on a low frequency.

Regarding the types of adverbs, English and Romanian texts display a similar number while in French, the children produce half the number of types. Tables 13 and 14 in Appendix 2 show the types produced in each language along with the adverbial classification. A noticeable difference concerns the class distribution in the three languages; most English adverbs belong to the Mood class (e.g., *actually*, *probably*, *really*), whereas most Romanian and French adverbs belong to Mode and Aspect classes (TP/vP field). For example, in the English narratives, there are 17 occurrences for *really* and ten for *probably*, but only four for *again* and two for *still*. There

is no evidence for a transfer of these Mood adverbs into Romanian or French, where the use of the English equivalents is virtually absent.

## 5.2 Convergent adverb placement in Romanian and English

For all three languages, there are no deviations in the semantic properties of individual adverbs (e.g., no over or under extensions). However, when it comes to the syntax of adverbs, Romanian and English narratives display convergent use, whereas French narratives do not always do so. Examples of target-like adverb placement are provided in (7) for Romanian and in (8) for English (i.e., adverbs that belong to Cinque's hierarchy in the TP and vP areas).

- (7) a. *Și începe iarăși să se îmbrace că nu mai trebuie să se dezbrace.* (Robert, age 9)  
 and begins again SBJV REFL get.dressed for not still needs SBJV REFL undress  
 'And he starts again to get dressed, for he does not need any more to be undressed.'
- b. *Și nu poți să mai vezi cățelu.* (M, age 9;10)  
 and not can.2SG SBJV still see.2SG puppy.the  
 'And you can't see the puppy anymore.'
- c. *Uite acuma ai și tu un prieten.* (Mar, age 10)  
 there now have.2SG also you a friend  
 'There, now you also have a friend.'
- (8) a. *But he still send[s] him away.* (Robert, age 9)
- b. *Instead, the frog just jump[ed] away in somebody's salad.* (M, age 9)
- c. *so they are probably think[ing] where did the frog go?* (Mar, age 10)

In (7) and (8) the same children produce sentences with adverbs in Romanian and English. These sentences show differences in the acquisition of the English verb morphology, for all three children, displaying inflectional errors for present and past and present progressive, which contrasts with adult-like production of indicative and subjunctive verb forms in Romanian. However, adverb use and placement are correct in each language.

## 5.3 Non-convergent adverb placement in L3 French

### 5.3.1 Distribution of non-convergent adverbs in French L3

In French, the children produced 72 occurrences of the target adverbs. The placement of these adverbs was generally correct, except in 19 cases, which amounts to 26% of cases out of the total corpus. Table 6 below presents the adverbs in this group and the distribution by type

Adverbs	Bien 'Well'	Juste 'Just'	Encore 'Still/again'	Maintenant 'Now'	Peut-être 'Maybe'	Finalement 'Finally'	Déjà 'Already'
Total = 72	8	10	27	23	2	1	1
Non-convergent = 19	1	1	11	4	2	0	0

**Table 6:** Non-convergent use of adverbs in French L3.

and occurrence. The non-convergent cases were established by taking into consideration the canonical position of these adverbs in the target language and by obtaining grammaticality judgments from three Francophone native speakers using a Likert scale of 1 to 5. We considered non-convergent the adverb placement cases where the three speakers gave responses of 1 and 2 (with 1 considered completely ungrammatical).

We see that the adverb *encore* takes the lead followed by the adverb *maintenant*. Given that the number of tokens is relatively low, we will proceed by showing the results by child for all these non-convergent uses, looking at their individual quantitative distribution in **Table 7**.

This table shows that errors appear in 7 out of the 15 participants, and, except for two participants, that they also produce some adverbs in the correct position. There is inter- and intra-speaker variation in the use of some of these adverbs in French narratives (we have not found examples for all the adverbs). For instance, participants *R* and *M*, who showed target-like performance for adverb placement in both Romanian (7) and English (8), display different results in French: as shown in (9) and (10) the participant *R* places the adverbs in the correct position, whereas *M* does not. Importantly, the clauses containing the adverbs belong to the same prosodic unit, with no intonation breaks.

- (9) a. *Il l'aime très bien, sauf l'autre, la grande grenouille qui était jalouse.*  
 he her-likes very much except the.other the big frog who was jealous  
 (R, age 9;7)  
 'He loves her very well, except for the other, the big frog, who was jealous'
- b. *Et le garçon, la tortue et le chien sont encore fâchés avec la grande grenouille.*  
 and the boy the tortoise and the dog are still angry with the big frog  
 (R, age 9;7)  
 'And the boy, the tortoise and the dog are still angry with the big frog.'

Participant	Age	All adverbs	Adverbs in Cinque's hierarchy	Non-convergent use
N	8;7	16	6	2
S	8;9	42	9	0
G	8;9	7	3	2
A	8;10	10	2	2
J	8;10	12	3	0
R	9;7	28	10	0
M	9;10	12	3	2
Mar	10;0	23	2	0
L	10;9	7	4	2
Ax	11;0	15	4	0
Ad	11;2	28	5	0
An	11;5	8	1	0
Lu	11;8	14	2	2
And	11;9	64	13	7
Ano	11;10	21	5	0

**Table 7:** Individual distribution of non-convergent adverb placement.

- (10) a. *Il a dit à la grand grenouille de rester et arrêter et de pas venir*  
 he has said to the big frog to stay and stop and to not come  
*encore.* (M, age 9;10)  
 still  
 'He said to the big frog to stay put and stop and to not still keep coming.'
- b. *La grand grenouille a botté la petit grenouille encore.* (M, age 9;10)  
 the big frog has hit the small frog again  
 'The big frog has hit again the small frog.'

The non-convergent use does tend to cluster in the younger participants, although there are too few tokens to draw any firm conclusions.

Verbal inflection	Infinitive	Finite	Finite complex	Finite simple
Total contexts	6	63	14	49
Non-convergent use	4	15	7	8
	66.6%	23.8%%	50%	16.30%

**Table 8:** Non-convergent adverb placement according to the finite/non-finite verbal inflection.

**Table 8** distributes the errors in adverb placement according to the (non)finite clause type.

According to **Table 8**, adverbs that occur with infinitival verbs are more likely to be used in an erroneous way. However the sample is very small. The next relevant percentage is in the column for clauses with complex tenses – again, the sample is relatively small.

### 5.3.2 Verb movement in French L3

The literature on L2 and L3 acquisition points out the verb movement parameter as one of the sources for non-target word orders. Hence, this section zooms in on the acquisition of verb movement by the children in our study. The conclusion is that this parameter is well set across the board.

As discussed in section 3, French finite verbs move to T on a systematic basis, while infinitive verbs tend, but do not have to, remain in situ. The position of the verb with respect to negation is categorical, in the sense that inflected verbs move to T past the negation marker *pas* as in (11a), while the infinitive verbs remain in situ and follow *pas* as in (11b).

- (11) a. *Jean ne regarde pas la television.*  
 Jean not watches not the television  
 ‘Jean does not watch TV.’
- b. *Ne pas regarder la television tous les jours serait idéal.*  
 not not watch.INF the television all the days would.be ideal  
 ‘It would be ideal to not watch TV every day.’

**Table 9** shows all the occurrences of negative clauses (which contain simple finite verb forms, complex tenses, and infinitives), and sums up the errors in this respect. The conclusion is that the children acquired verb raising in French with all verb forms.<sup>10</sup> Even the youngest participants, with the lowest experience in French L3, correctly place the verb in relation to *pas*.

<sup>10</sup> There is one exception, participant A, who did not produce any negative clause. Although we cannot verify verb movement with respect to negation, we note that in general the child uses correct verbal inflection (person and number agreement) and the verbs are inflected with a variety of tenses (present, passé composé, imparfait).



Participant	Age	Total Negative clauses	Total non-convergent
N	8;7	7	0
S	8;9	9	0
G	8;9	9	1
A	8;10	0	0
J	8;10	16	0
R	9;7	9	0
M	9;10	4	0
Mar	10;0	16	0
L	10;9	8	2
Ax	11;0	7	0
Ad	11;2	5	0
An	11;5	7	0
Lu	11;8	7	3
And	11;9	22	0
Ano	11;10	2	0

**Table 9:** Negative context and non-convergent verb placement.

**Table 9** shows that there are a few cases of non-convergent negative clauses, discussed below. In example (12), the last clause contains a conjugated verb with the adverb *pas* in front:

- (12) (...) *et il dit à le grand grenouille de rester (um) sur le gazon et pas vient.* (Lu, 11;8)  
 and he tells to the big frog to stay on the lawn and not come  
 ‘and he tells the big frog to stay on the lawn and to not come’

This is a morphological, not a syntactic error: given the coordinated infinitival clause that precedes this error, it is likely that the child intended to produce another infinitival clause and produced the wrong verbal form.

Another child uses the wrong verb form for the infinitive, in two clauses that clearly have the infinitival structure:

- (13) a. *Le garçon a dit de ne pas fait ça.* (L, 10;9)  
 the boy has said to not not do this  
 ‘the boy said to not do this’
- b. *Il a dit de ne pas fait ça encore.* (L, 10;9)  
 he has said to not not do this still  
 ‘he said to not still do it’

This kind of non-convergent use, which we classify as morphological versus syntactic, appears only with the two children mentioned above. Aside from this, two children fail to produce the negation *pas* in three instances:

- (14) a. *Le gros grenouille ne va.* (G, 8;9)  
 the big frog not goes  
 ‘the big frog does not go’
- b. *Et il ne sait qu’est-ce que c’est.* (Lu, 11;8)  
 and he not knows what is-this that this is  
 ‘and he doesn’t know what this is’
- c. *Mais le petit garçon ne voit.* (Lu, 11;8)  
 but the little boy not sees  
 ‘but the little boy doesn’t see’

However, the same children are also capable of using *pas* elsewhere:

- (15) a. *Le garçon ne voit pas le petit grenouille.* (G, 8;9)  
 the boy not sees not the small frog  
 ‘the boy doesn’t see the small frog’
- b. *Quand ils allaient à la maison, le garçon pleure parce que il ne peut pas le trouver.* (G, 8;9)  
 when they went to the house the boy cries because that il not can not  
 it find  
 ‘When they were going home, the boy was crying because he couldn’t find it’
- c. *(Um) mais le grand grenouille (um) n’est pas très bon avec le petit grenouille.* (L, 11;8)  
 um but the big frog um not is not very nice with the small  
 frog  
 ‘but the big from is not very nice to the small frog’
- d. *[...] il peut pas (um) trouver le petit grenouille [...]* (Lu, 11;8)  
 he could not um find.INF the small frog  
 he couldn’t find the small frog

The child, *Lu*, has the most production problems in this respect. Out of seven negative clauses, we found the reported non-convergent uses in three clauses. The problem seems to be the acquisition of the negation, not of verb movement: the child uses only preverbal *ne* (as fully fledged preverbal negation, as in Romanian and other Romance languages) without the correlated *pas*.

One child provides the example (16) where the adverb appears between the past participle and the direct object:

- (16) *(Quand le) quand pas de personne regarde, le grenouille a dit encore les méchants*  
 when the when not of nobody watches the frog has said again the bad  
*mots à le grenouille* (G, 8;9)  
 words to the frog  
 ‘When nobody watched, the frog has again said bad words to the frog.’

Although this example does not contain negation, we included it in this section because it shows possible verb movement of the past participle.

### 5.3.3. Adverb linearization in French L3

This section takes a closer look at the variation of word order where the adverb surfaces in a wrong position in French L3. At this time, we consider only the surface linearization, with no detailed discussion of what it may signal in terms of hierarchical structure. Table 12 in Appendix 1 provides the complete list of examples. The erroneous placement of French adverbs in clause-final position (SVOAdvP) occurs in 10 out of the 19 instances, irrespective of the (non) finite nature of the clause. Next in frequency, is the erroneous placement of the adverb between the subject and the raised verb (S - AdvP - V/T), followed by adverb placement in initial clause position (AdvP -S - V/T) or between two instantiations of the same subject (S-AdvP -S - V/T). In most of the cases, the adverb used is *encore* (with occasional examples of the adverbs *maintenant*, *peut-être*, *bien* and *juste*). In four cases the verb is infinitive (with negation in three cases). Because of the prevalence of non-convergent use of the adverb *encore*, we focus our discussion on it, pointing, when necessary, to other adverbs.

Note first, that the adverb *encore* can have two meanings in French, a continuative meaning and a repetitive meaning. The placement of the Romanian and English counterparts of this adverb is variable (i.e., either in situ or moved) or regulated by the type of adverb, as shown in **Table 10**. Crucially, there are different lexical items for each value of *encore* in the other two languages.

In our French corpus, the adverb *encore* appears mostly in a clause-final position and, in a few instances, in clause-initial as well as pre-verbal position. In clause-final position, the adverb is used as either continuative or repetitive:

Encore	Romanian equivalent	Position in Romanian	English equivalent	Position in English
continuative	<i>încă</i>	variable	still, yet	pre-verbal
repetitive	<i>iarăși, încă, tot</i>	variable for <i>iar(ăși), încă</i>	again	variable
		pre-verbal for <i>tot</i>		

**Table 10:** Counterparts of *encore* in Romanian and English.

- (17) a. *Puis tous les animaux sont fâchés à la grande grenouille encore.* (A, 8;10)  
 then all the animals are upset with the big frog still  
 ‘Then all the animals are still upset with the big frog.’
- b. *La grand grenouille a botté la petit grenouille encore.* (M, 9;10)  
 the big frog has kicked the small frog again  
 ‘The big frog kicked the small frog again.’

Placement of the verb with respect to negation in infinitives is correct, as shown in (18). Crucially, the adverb is clause-final although the verb remains in situ, lower than *pas*.

- (18) *Il a dit à la grand grenouille de rester et arrêter et de pas venir*  
 he has told to the big frog to stay and stop and to not come  
*encore.* (M, 9;10)  
 again  
 ‘He said to the big frog to stay put and stop and to not come again.’

Notably, most children also produce target placement of the adverb along with non-convergent use, and this is true for the other adverbs and most of the participants as well. For instance, while the participant *And* produces most instances of non-convergent use (see Table 12 in the Appendix 1), the child also produces adverbs placed in a target-like manner as in (19) below:

- (19) *Après (um) la petite grenouille elle est encore (um) près de la grande*  
 then um the small frog she is still close of the big  
*grenouille.* (And, 11;9)  
 frog  
 ‘Then, the small frog was still close to the big frog.’

Another type of linearization is S - AdvP - V/T, which shows the adverb in between the subject and the conjugated verb, even when the subject is a clitic pronoun. Note that, as in the examples with negative infinitive clauses, finite verb movement is also correctly set: in (20), the finite verb moves higher than *pas* in the presence of a preverbal adverb.

- (20) *La grand grenouille encore n'aime pas la petit grenouille.* (N, 8;7)  
 the big frog still not likes not the small frog  
 'The big frog still doesn't like the small frog.'

We note a variety of adverbs in this position, not just the adverb *encore*: *juste* 'just', *maintenant* 'now', *peut-être* 'maybe'.

Finally, linearizations in clause-initial position or between two instantiations of the subject are shown in (21):

- (21) a. *Et encore personne ne sait qu'est ce qui se passe.* (And, 11;09)  
 and still nobody not knows what SE going on  
 'And still nobody knows what is going on.'
- b. *Et le garçon encore il dit au grande grenouille de ne pas faire ça.* (And, 11;09)  
 and the boy again he said to the big frog to not do this  
 'And the boy says again to the big frog to not do this.'

Along with the adverb *encore*, we have also found examples with the adverbs *maintenant* and *peut-être*.

#### 5.4 Summary of results

Our results point out that French L3 provides examples of non-convergent adverb use (unlike Romanian and English), with the following characteristics:

- a) Non convergent word orders, where the adverb surfaces in clause-final position, or in preverbal position, or in clause-initial position;
- b) Verb movement is well established but there is a tendency of non-convergent adverb placement in non-finite contexts;
- c) Children are capable of placing adverbs, at the same time, in a target-like and non-convergent manners, and for some children, adverb production, although limited, is entirely target-like;
- d) Non-target word orders tend to cluster in younger participants who also have fewer years of experience in French;
- e) Non-target word orders seem linked to a specific lexical item, i.e. the adverb *encore*.

Although the findings presented are limited from a quantitative point of view, they align well with previous results. Word order perturbations related to specific adverbial lexical items have been noted in studies of production of adverbs in work such as Herschensohn (1998) and Hancock and Sanell (2009). In our corpus, the adverb *encore* is the one most used in a non-convergent manner.

Variability in adverb placement – participants who use convergent and non-convergent word orders with the same adverb - has been also attested in previous studies, and taken to indicate an intermediate stage of acquisition: the acquisition of the relevant parameter (in this case, verb raising in French) while the background language parameter (a non-raising language such as English) is still in use (Herschensohn 1998; Leung 2006). In our corpus, there seems to be a tendency for non-convergent use to appear in the non-finite contexts. While we are not aware of similar results for L2 or L3 French, the same result was found in L2 Spanish by Ayoun (2005); the participants performed at chance level in the non-finite condition with adverb placement. In contrast, the verb with respect to negation was relatively well placed, however, negation and adverb did not occur in the same sentence. The author speculates that verb raising past the adverbs in non-finite contexts might not have been well acquired given the rarity of these structures in the input.

Preference for adverb placement in clause-final position has been noted in other production corpora, and while sometimes this was attributed to influence from the previous language, at other times it was hard to find an explanation in terms of cross-linguistic influence. For instance, Hancock and Sanell (2009) speculated that preference for the clause-final position in French L2 found especially with the adverb *aussi* could be the result of superficial influence from L1 Swedish. Similarly, Herschensohn (1998) noted the clause-final position of the adverb *mal* in French L2 (following the use of *well* in English L1) but also of the adverb *souvent* (the corresponding adverb *often* cannot appear in final position in English), concluding that not all non-target adverbial positions are the result of cross-linguistic influence. The preverbal placement (SAdvV/T) in our corpus is also quite prevalent. The position of adverbs in front of inflected verbs, in language combinations where one of the prior languages is English, has been taken to indicate lack of verb raising (Herschensohn 1998; 2009; Ayoun 2005; Leung 2006; Stadt et al. 2016).

While alignment of our findings with those from previous research validates our small data points, we diverge from the interpretation of these findings in previous literature. More specifically, we show, in the following section, that word order perturbations are not the result of verb movement, or lack thereof, but can be better explained in terms of various dislocations.

## 6. Analysis

This section analyzes the data from two perspectives: (i) the linearization of adverbs, under the assumption that children may transfer surface word order from L1 or L2, without involving the hierarchical structure; and (ii) the syntactic structure that underlies the wrong linearization. The aim is to understand if transfer of parametric settings is at work. This is in line with the research questions raised in this paper, namely:

- (i) How is adverb placement learned in a French L3 setting?
- (ii) What is the contribution of the background languages, Romanian and English, to the acquisition of French L3? More specifically, do we see non-convergent word order involving adverbs and if yes, does transfer play a role in these? If so, what is the source of transfer?

Relevant to question (i), is the finding of the previous section that, syntactically, Cinque's hierarchy is well acquired in the three languages, as per our initial hypothesis. Cross-linguistically, the lexical stock differs in both quantity and selection of tokens. When it comes to quantity, target adverbs in French are less lexically diverse than in Romanian and English, and the number of tokens is lower. When it comes to lexical selection, all three languages display tokens that merge across Cinque's hierarchy. However, the number of TP and vP based adverbs is significantly higher in both French and Romanian data, whereas the CP based adverbs (Mood field) show a comparatively high incidence in the English data. We conclude that there is no mapping problem where adverbs are concerned (e.g., adverbs of CP area, such as *finalement*, *peut-être* are present in French L3, but not frequent), and that variation in the token selection is due to extra-linguistic factors (e.g., cultural patterns for transition formulae in narratives).

Limiting our considerations to linearizations, we establish the following: i) Adverb placement in clause final position arises in both English and Romanian, although at a different rate: English allows for final *again* but not for *still*, whereas Romanian allows for both, and in French, final *encore* comes with both *again* and *still* values (see examples 17a-b and Table 12 in the Appendix 1); ii) Adverb placement between subject and verb is allowed in both English and Romanian; however, with such word order, the English finite verb remains in vP, whereas the Romanian verb moves to T, and so does the French finite verb in our corpus; iii) The order S-AdvP-S-V/T occurs in Romanian but is disallowed in English; iv) *encore* is more sensitive to erroneous placement since it is homonymic for two aspectual values.

## 6.1 Discourse fronting in French L3

This section discusses the syntactic patterns that underlie the erroneous linearizations listed in the previous section. The gist is that the main trigger for these errors is the way adverbs undergo left or right dislocation, while the setting for the verb movement parameter is orthogonal to the issue.

In our study verb movement does not seem to be a trigger for linearization errors. Although the non-convergence percentages of **Table 8** indicate a higher incidence of errors in infinitive clauses and in the presence of complex tenses, when we look at the respective data, we notice that verb movement follows the rules, whereas the placement of adverbs does not. What is the parametric setting responsible for the deviations?

The erroneous **clause-final** linearization of the adverb (see all examples in Table 12 in Appendix 1) may theoretically arise from two structures: (i) verb movement past the adverb in situ; or (ii) right dislocation of the adverb, meaning that the adverb remains in situ, whereas the vP fronts (as Remnant Movement). The correct placement of *pas* in relation to the verb in these contexts (especially with infinitives, as in (22a) — also see previous sections) eliminates pattern (i). We are thus left with pattern (ii). Evidence for pattern (ii) comes from sentences where either the repetitive or the continuative *encore* is preceded by direct objects and/or prepositional phrases, as in (22a, b).

- (22) a. *Quand le garçon le voit, il dit à le grande grenouille de pas faire ça*  
 when the boy him see he says to the big frog to not do this  
*encore.* (G, age 8)  
**again**  
 ‘When the boy sees it, he tells the big frog to stop doing this again.’
- b. *Tous les animaux et le garçon sont très fâch/és sur le grand grenouille*  
 all the animals and the boy are very upset with the big frog  
*encore.* (Lu, age 11)  
**still**  
 ‘All the animals and the boy are still angry with the big frog.’

In Cinque’s hierarchy, both Asp<sub>repetitive</sub> and Asp<sub>continuative</sub> are in the TP field (see 2b). On the other hand, direct objects and adjunct prepositional phrases are base generated within vP. For these constituents to precede the adverb in situ, as in (22), Remnant Movement (vP movement after being vacated by one or more items) must be at work.<sup>11</sup> There is no structure lower than vP, so we cannot assume that the child’s grammar maps the repetitive or continuative in a slot that is hierarchically lower than V or sister to V – the adverb must be higher, in situ.

Right dislocation along this pattern is productive in all three languages under consideration, although the adverbs that occur in such contexts may be different. For example, English routinely allows it with *again* but not with *still*. French also allows for the right dislocation of some adverbs (e.g. *brèvement* ‘shortly’ base generated in Asp<sub>durative</sub> in (2b))<sup>12</sup> but not of *encore*. Romanian shows no restrictions for the right dislocation of any class of adverbs, except for those that have a proclitic status. For example, the Romanian clause in (23), produced in our corpus, shows *încă* in final position, and the interpretation can be either continuative or repetitive, according to the context – in this particular context it is continuative.

<sup>11</sup> One may alternatively consider that objects scramble out of vP (instead of vP movement), but that would not be applicable to any type of PP and it would incorrectly eliminate Romanian from the equation (no object scrambling in this language).

<sup>12</sup> *Il nous raconta la chose brièvement.* ‘He succinctly told us the story.’ (<https://fr.thefreedictionary.com>)



- (23) *și se joacă încă* (Ad, 11;02)  
 and REFL plays still  
 ‘And he still plays.’

Since the syntactic rule is present in all three languages, no parametric transfer applies. The problem concerns the specific lexical items that undergo right dislocation, and in this respect the children work with the most comprehensive pattern, which happens to apply in Romanian; it is an example of the generalized system of right dislocation in Romanian applied in French.

**Clause-initial** linearization of adverbs may also be analyzed as transfer of the more generalized parametric pattern. All three languages allow for adverb fronting; however, they differ with respect to the class of adverbs compatible with this operation. Thus, in the examples xv. and xvi. of Table 12, in the Appendix 1, the errors consist in the choice and pairing of tokens, not in the illegality of fronting per se: i.e., continuative *encore* is not a frontable item in French L1, whereas *maintenant* is, but not above the transition formula *aussi* (too high in the CP). It also happens that Romanian is the least discriminatory in this respect, and allows for the counterparts of xv. and xvi., see example (24), with the Romanian equivalent of continuative *encore*:

- (24) a. *Și încă își linge laba.* (R, 9;07)  
 and still REFL licks paw  
 ‘And he is still licking his paw.’

A more challenging linearization noted in section 5.3.3 has the adverb **in between the subject and the verb**, as shown again in (25).

- (25) a. *La grand grenouille encore n’aime pas la petit grenouille.* (N, 8;07)  
 the big frog still not likes not the small frog  
 ‘The big frog still doesn’t like the small frog.’  
 b. *Et il maintenant va être sur le bateau.* (And, 11;09)  
 and he now will be on the boat  
 ‘And he will now be on the boat.’

In Cinque’s hierarchy (2b), the continuative *encore* is base generated in the lower part of the TP field, whereas *maintenant* is in a (non-argumental) Spec of TP. Thus, the word order in (25) may arise from two underlying syntactic patterns: (i) the verb remains in vP, while the subject is in the (argumental) Spec,TP, so naturally, the adverb in the TP field will be in-between; or (ii) the verb is in T and the adverb is fronted to the CP field. Notably, other adverbs also occur in this position (*juste, peut-être*).

Pattern (i) cannot be considered because all these contexts necessarily contain finite verbs (or else no subjects could be present), and simple finite verb movement to T is well established in these children’s grammar (see previous sections). For example, the verb is higher than *pas* in (25a) while the adverb is still preverbal. Crucially, the adverb precedes the auxiliary in (25b),

where the verb is in complex tense and should have displayed the adverb in situ between the auxiliary and the verb (as it would in the English counterpart). Erroneous movement of the past participle cannot be at work because that would have left the adverb in post-verbal position. Since these observations eliminate pattern (i), the alternative is pattern (ii): the adverb is fronted from its in situ position to the CP field, under discourse triggers.

Adverb fronting is possible in all three languages, but it would leave the subject lower in either French L1 (e.g., *maintenant il va...*) or English (e.g., *now he goes...*). However, in (25), the subject is fronted higher than, and concurrently, with, the adverb. This is typical of Romanian grammar, where fronting does not involve quantificational chains (see example (4)), so various constituents can concurrently undergo fronting. Romanian examples of similar linearization are found in the corpus; see (26).

- (26) a. *dar broasca țestoasă încă se ține de câine de labă.* (And, 11;9)  
 but frog.the still REFL holds on dog on paw  
 ‘But the frog is still holding on to the dog’ paw.’
- b. *broasca doar se uită la cățelu’ și la broască* (N, 8;07)  
 frog.the just REFL looks at doggy.the and at frog  
 ‘the frog just looks at the little dog and at the frog’

French also allows for non-quantificational chains upon subject fronting (through CLLD), but does not extend it to concurrent free fronting of other constituents (e.g., *\*Jean la maison il ne la veut pas/\*La maison maintenant il ne la veut plus*).

Hence, although CLLD applies in both Romanian and French, the pairing of CLLD with the non-quantificational fronting of any type of constituents, including AdvP, applies only in Romanian, and it is visibly extended to French L3. Further indications of transfer from Romanian come from the subject treatment: in (25a), CLLD fails to apply to the fronted subject (i.e., there is no resumptive clitic), which is the way subjects are generally dislocated in Romanian (no overt resumptive clitic in (26)); in (25b), the subject pronoun undergoes dislocation, although it is a proclitic, which is the way subject pronouns are fronted in Romanian, since they are not clitics. This indicates morphological transfer (lack of subject clitics, non-clitic treatment of *il*) in addition to the partial transfer of the fronting/discourse parameter from Romanian to French L3.

Finally, our results also show linearization errors where the adverb surfaces **between two subject forms**: a full-fledged DP and the corresponding subject clitic, as in (27).

- (27) a. *Et le garçon encore il dit à la grande grenouille de ne pas faire*  
 and the boy again he = says to the big frog to not not do  
*ça.* (Andu, age 11)  
 this  
 ‘And the boy tells again to the big frog to not do it.’

This is a variant of the partial fronting/discourse parametric transfer discussed above, with the exclusion of the additional morphological transfer of subject treatment: CLLD applies as in French L1, but it is concurrent with adverb fronting, which is not a property of French L1. This order occurs routinely in Romanian (with dislocations for both the subject and the adverb and optional resumption through a non-clitic pronoun), but yields ungrammaticality in English.

**Table 11** sums up all the points of possible transfer discussed in sections 5 and 6.

		English L2	Romanian L1	French L3	French L1
Cinque's hier.		+	+	+	+
Word order	final	+/- ( <i>again vs still</i> )	+	+	-
	initial	+/- (Adv-S-V)	+	+	- ( <i>encore</i> )
	preverbal	+ (S-Adv-V)	+/-	+/-	-
		- (S-Adv-S-V/T)	+	+	-
Verb movt.	finite	-	+	+	+
	non-finite	-	+	-	-
Single negation		-	+	+/-	-
Fronting/CLLD		-	+	+	+

**Table 11:** Comparative list of non-convergent cases in French L3.

Comparing French L3 and French L1, there are five non-convergent areas. All five areas are convergent in Romanian L1, while only three are partially (i.e. +/-) convergent in English. Hence, we conclude that the influence of Romanian grammar is stronger on French L3 than the English grammar. To these observations, we also add the remarks on the lexical information, that is, children could produce quantitatively more adverbs in Romanian, and the type of adverbs used in the French L3 texts were also the counterparts of those in the Romanian texts rather than in the English texts (e.g., no use of most English Mood adverbs).

## 6.2 Transfer to French L3

In light of the analysis in the previous section, the proposal is that there is evidence of transfer from Romanian L1 to French L3, and the transfer involves the discourse parameter. More precisely, both Romanian and French display a positive setting for the discourse parameter with non-quantificational chains, but the extent of its applicability differs: the setting is more

comprehensive in Romanian, for both left and right dislocations (no restrictions on the type and number of fronted constituents, no lexical restrictions) but more limited in French (e.g., only arguments front, one at a time, some adverbs do not undergo fronting). Hence, the cases of Romanian transfer to French fall under the proposed concept of *structural similarity*, whereby Romanian, which has more generalized mechanisms in the dislocation system, influences French which presents more restricted options in the same area. This results in non-facilitative influence insofar as French L3 learners do not show the lexical and constituent restrictions on dislocation as per the target grammar. The phenomena observed can be further characterized as falling under the notion of *syntactic complexity* or *interface syntax* (Jakubowicz 2000 and Sorace 2005 respectively) – features that belong to the interface between syntax and other domains such as the lexicon and discourse (discourse, in this case) are more difficult to acquire and are more prone to cross-linguistic influence from a previously acquired language. Moreover, a syntactic operation is less complex if it applies obligatorily in every sentence and more complex if there are restrictions on its application. The influence applies from the background language into the language being learned when the background language presents the more economical system (less complexity).

We note that the data presented show limited scope of transfer, as children are also capable of using the correct word order, and adverbial non-convergent uses are scarce. This is something that we observe in previous studies as well, as learners are usually capable of using the target construction to a certain extent. Until fully acquired (if ever), the grammar of adverb placement in French displays what Sorace (2005: 7) calls “residual optionality”. We provided arguments that this optionality is due to transfer and that it happens at the level of the syntactic representation. However, we also note that the data do not exclude the possibility that language processing is the underlying cause (and no data can exclude this unless an experiment tapping processing is used).

In addition, Romanian is the learners’ L1 and it is a Romance/Latin language like French. As such, the proposed transfer from Romanian to French also satisfies the predictions of the Typological proximity model (Rothman 2013; 2015) as well as those made by the L1 factor model (Herms 2010; 2014) if indeed we consider Romanian as the sole L1 (with English the L2). Therefore, the three accounts are confounded in this case but the data do fall under the more precise analysis of structural similarity, irrespective of the possible and plausible role of the typological proximity and/or the L1 factor. In this respect, to the best of our knowledge, the present study is the first to indicate that generalized discourse triggered fronting (resulting in movement of adjuncts as well as arguments) can also be transferred in the domain of the acquisition of adverb placement. Previous work on non-convergent linearization of adverbs concentrated by and large on transfer from the domain of verb movement.

Studying the acquisition of adverb placement presents some methodological issues that should be observed in future research. The present study enhances previous findings in the domain of adverb placement by indicating that, when a previous language has mechanisms underlying what is called “free word order”, all these mechanisms can transfer to a newly acquired language in the particular domain of adverb placement. This points to the need for studies that test domains larger than the vP area where the stimuli only contain the verb, its arguments, and one contrast in adverb placement, as in the highly preferred judgment/preference tasks used in this domain (*Léa regarde souvent la télévision. / Léa souvent regarde la télévision.* ‘Léa watches often TV.’/‘Lea often watches TV.’; cf. Hermas 2010: 361). While this simple contrast is necessary in order to minimize parsing complexity in preference/judgment tasks (McDaniel & Smith Cairns 1998), and crucially important in determining the verb movement setting, considering tasks with more clausal material (for instance, including negation and adverbs at the same time) or choosing contrasts that reveal other types of movement is also necessary.

Moreover, previous studies on (ad)verb placement have mentioned that accuracy results can vary according to the type of task (see Prévost 2009: 110 and references therein). For example, Leung (2002) reported higher accuracy on the production task (written sentence completion) than on the preference task (PT). She interpreted this difference as a task effect of the PT, which included an option “both right”, or as a possible weakness of the PT (similar to judgment tasks) in tapping into learner’s underlying competence. While we cannot directly compare our results to those obtained through other type of tasks, they do align with the generally good performance found by the previous production studies. It is also possible that children’s good performance on adverb placement can be attributed, in part, to the nature of the production task, where the participant is free to choose not to produce a particular syntactic construction or lexical item (as opposed to an elicited production task, for instance). Lastly, production data have been found to be more compatible with studies reporting L2 or hybrid (L1 and L2) influence and might, for example, “capture processing-based influence at a more superficial level” (Puig-Mayenco et al. 2020: 49) due to considerations such as attentional resources. It is therefore advisable to treat our results (as well as any results from production studies) with caution until a comprehension study confirms them.

In addition to pinpointing the source language of the transfer, we are interested in the identification of structural requirements for transfer at more advanced stages of acquisition. In a more general context, our study supports the approach of UG-constrained sequential acquisition and we note the importance of discussing not only what seems difficult in acquisition but also the areas that seem to conform to the predicted patterns.

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## Additional files

The additional files for this article can be found as follows:

- **Appendix 1.** Table 12 Non-convergent linearization of adverbs. DOI: <https://doi.org/10.16995/glossa.5721.s1>
- **Appendix 2.** List of all adverb types found in the English, French and Romanian child corpora. DOI: <https://doi.org/10.16995/glossa.5721.s2>
- **Appendix 3.** Romanian adverbs tested for Cinque's hierarchy. DOI: <https://doi.org/10.16995/glossa.5721.s3>

## Competing interests

The authors have no competing interests to declare.

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