



**UiT** The Arctic University of Norway

Faculty of Humanities, Social Sciences and Education

## **Cross-linguistic Influence in L3 Acquisition of English by child heritage speakers of Russian in Norway**

Anna Saraeva

Master's thesis in English Linguistics, ENG-3991, May 2023



Cross-linguistic influence in L3 Acquisition of English by child  
heritage speakers of Russian in Norway

Thesis submitted by:

Anna Saraeva

Master of Philosophy in English Linguistics  
Faculty of Humanities, Social Science and Education  
The Arctic University of Norway, Tromsø

Supervised by:

Prof. Dr. Natalia Mitrofanova

Department of Language and Culture  
The Arctic University of Norway, Tromsø

# Acknowledgements

First and foremost, I would like to thank my supervisor Prof. Natalia Mitrofanova for her insightful comments, guidance, and encouragement throughout each step of the writing process. I cannot find words to express how grateful I am to Natalia for always being there for me whenever I needed her support. The thesis writing process as well as the whole experience of studying at the master's programme happened remotely for me but thanks to Natalia and other amazing professors at my program, I have never had a feeling of being isolated. It has not been the easiest journey and it definitely took a bit more time to complete it, but finally here we are!

I would like to extend a special thank you to Dr. Sergey Minor who provided invaluable help and support throughout the data analysis process.

I want to express my sincere gratitude to Prof. Yulia Rodina whose lectures in SLA introduced me to the field of Language Acquisition back in 2018 and made me interested in pursuing this master's program.

I am grateful to all the participants and schools who took part in my research project, without whom this study would not have been possible. A special thank you goes to Marthe Bråthen who provided assistance with data collection and recruitment of the Norwegian students.

Last but not least, I would like to express my gratitude to my friends and my family who have sent their unconditional love and words of support despite a long distance between us.

Thank you, amazing people! I could not have done this without you.

## Abstract

The present study investigates crosslinguistic influence (CLI) in the acquisition of L3 English by Russian-Norwegian children in attempt to understand how previous knowledge of two typologically distant languages affects the acquisition of the language that shows structural similarities with both languages and what role language dominance plays in this process. The participants were tested through an acceptability judgment task in conditions targeting the acquisition of articles, subject-verb agreement and word-order. The performance of Norwegian-Russian bilingual children ( $n = 19$ ) was compared to two control groups – L1 Norwegian ( $n = 20$ ) and L1 Russian ( $n = 106$ ) learners of English.

The results of the current study show that the performance of the bilingual speakers differs from their monolingual peers implying that CLI comes from both previously learned languages. Moreover, in one of the conditions (Articles), the bilinguals perform in-between the two groups which indicates that both facilitative and non-facilitative influence takes place in L3/Ln acquisition. Although this study reported evidence of CLI in different linguistic properties, we observed varying developmental trajectories in the tested conditions which implies that accuracy of the participants' judgements was affected not only by their previous linguistic knowledge but also by the complexity of a particular linguistic property.

The study sheds light on the role of heritage language (HL) use in third language acquisition. Our prediction that CLI from the HL would occur proportionately to the use of the HL, was partially borne out as we found a relatively weak but positive effect of heritage language use on the bilinguals' accuracy in the condition testing subject-verb agreement with plural subjects. This finding suggests that even a non-dominant language can have an impact on the acquisition of the L3.

Overall, the findings of the current study are best captured by the Linguistic Proximity model (Westergaard et al., 2017) and Scalpel Model (Slabakova, 2017) which allow for simultaneous influence of both early-acquired languages and predict both facilitative and non-facilitative influence in L3 acquisition. While the results of this study indicate that linguistic similarity plays an important role in L3A, it is not the only predictor of CLI as both intra-linguistic factors (salience and linguistic complexity) and extra-linguistic factors (dominance and language use) affect the acquisition of a new language.



# Table of Contents

|       |                                                                    |    |
|-------|--------------------------------------------------------------------|----|
| 1     | Introduction .....                                                 | 9  |
| 2     | Theoretical background.....                                        | 11 |
| 2.1   | Heritage speakers as L3 acquirers .....                            | 11 |
| 2.2   | Models of CLI in L3A .....                                         | 12 |
| 2.2.1 | A privileged role of the L1 .....                                  | 13 |
| 2.2.2 | The L2 status factor.....                                          | 14 |
| 2.2.3 | The Cumulative Enhancement Model.....                              | 15 |
| 2.2.4 | The Typological Primacy Model.....                                 | 16 |
| 2.2.5 | The Linguistic Proximity Model .....                               | 18 |
| 2.3   | Additional factors affecting CLI in L3A .....                      | 21 |
| 2.3.1 | Linguistic property acquisition difficulty.....                    | 21 |
| 2.3.2 | Language Dominance.....                                            | 22 |
| 2.4   | The current state of research in L3A .....                         | 24 |
| 3     | Crosslinguistic differences in Norwegian, Russian and English..... | 27 |
| 3.1   | Article system in English, Norwegian and Russian .....             | 27 |
| 3.1.1 | (In)definiteness.....                                              | 28 |
| 3.1.2 | Genericity .....                                                   | 34 |
| 3.2   | Subject-verb agreement in English, Norwegian and Russian.....      | 37 |
| 3.2.1 | English.....                                                       | 38 |
| 3.2.2 | Norwegian .....                                                    | 39 |
| 3.2.3 | Russian .....                                                      | 39 |
| 4     | Current study .....                                                | 41 |
| 4.1   | Research Questions and Predictions.....                            | 41 |
| 4.2   | Method.....                                                        | 43 |

|       |                                                                            |     |
|-------|----------------------------------------------------------------------------|-----|
| 4.2.1 | Acceptability Judgement Task .....                                         | 43  |
| 4.2.2 | English Proficiency Test .....                                             | 53  |
| 4.2.3 | Language Background Questionnaire. ....                                    | 54  |
| 4.3   | Participants and procedure.....                                            | 60  |
| 5     | Results .....                                                              | 62  |
| 5.1   | The Proficiency Test.....                                                  | 63  |
| 5.2   | The Acceptability Judgement Task .....                                     | 64  |
| 5.2.1 | Descriptive analysis of the full dataset.....                              | 65  |
| 5.2.2 | Statistical analysis of the results, controlled for proficiency .....      | 77  |
| 5.3   | The effects of HL use on CLI from Russian .....                            | 86  |
| 6     | Discussion .....                                                           | 89  |
| 7     | Conclusion.....                                                            | 96  |
|       | Works cited .....                                                          | 100 |
|       | Appendices .....                                                           | 109 |
|       | Appendix A: AJT sentence pairs.....                                        | 109 |
|       | Appendix B: The Standardized Oxford Proficiency test.....                  | 113 |
|       | Appendix C: The Language Background Questionnaire (for monolinguals) ..... | 116 |
|       | Appendix D: The Language Background Questionnaire (for bilinguals).....    | 117 |
|       | Appendix E: Information used for the HL Use .....                          | 124 |
|       | Appendix F: Information Letter and Consent Form.....                       | 125 |
|       | Appendix G: Accuracy by Grammaticality and Group (raw data analysis) ..... | 128 |
|       | Appendix H: The Bayesian mixed effects logistic regression .....           | 131 |
|       | Appendix I: The Bayesian logistic regression (HL use effects).....         | 133 |



# 1 Introduction

Although the field of third language acquisition (L3A) is relatively nascent, it has seen considerable activity in the recent years. An especially fruitful area of inquiry in L3A is related to the role previously acquired languages play in the acquisition of a third or additional language. Over the past decades various models emerged in attempt to explain whether the L1, the L2 or both affect the development of the subsequently learnt language, and what factors predict the source of crosslinguistic-influence: order of acquisition, typological/structural similarity, previous cumulative linguistic experience, or language dominance.

The current study aims at examining how the previously acquired languages influence the acquisition of L3 English. In line with the Linguistic Proximity Model (Westergaard et al., 2017) we posit that L3 acquisition is a step-by-step acquisition process, in which both previously acquired languages are co-activated based on structural similarity with the L3, not only at the initial but also at developmental stages of the acquisition process. In order to test this theory and examine whether only one or both languages can become the source of CLI in the L3, we employ a subtractive language group design (Westergaard et al, 2023) which allows us to isolate the role of each of the previously acquired languages and address the issue of the source of CLI.

The present study focuses on the acquisition of articles and subject-verb agreement in L3 English by Russian-Norwegian child bilinguals, namely heritage speakers of Russian in Norway. Their performance is compared with two L2 groups: L1 Russian and L1 Norwegian learners of English. The experimental conditions have been chosen, as there reflect both similarities and differences across the three languages. The acquisition of articles in English has been reported to be notoriously challenging for L2 learners, especially for those who are L1 speakers of article-less languages such as Russian (Ionin et al., 2003; Ionin et al., 2006; Cho & Slabakova, 2014); while subject-verb agreement has been found to pose a great difficulty for L1 Norwegian learners of English until higher levels of proficiency (Jensen et al., 2020), which could be attributed to the fact that Norwegian does not have overt subject-verb agreement.

Moreover, this paper strives to shed light on a relatively understudied population of bilinguals - heritage speakers. Heritage speakers are interesting for the acquisitionists from a theoretical perspective since this population has two naturalistically acquired language systems. What makes this population even more interesting for the researchers is the fact that they are rarely balanced in their languages. Normally, a societal language becomes bilinguals' dominant language, while HL is often a weaker language due to limited exposure and use of this language. In order to investigate the extent to which the HL, as the non-dominant language, can also affect the developing L3 system, the secondary objective of the present study is to research the role HL use plays in selecting the source of crosslinguistic influence in L3A.

Thus, the primary questions which this study aims to explore are the following:

1. Do both previously acquired languages affect the acquisition of L3 English, or is only one of the languages chosen as the source of crosslinguistic influence?
2. Is CLI always facilitative, or can it also be non-facilitative?
3. To which extent will CLI from Russian (the non-dominant language) be related to language use measure in that language?

We predict that if co-activation of competing related structures indeed takes place in L3A, the Russian–Norwegian learners would perform in-between of the L2 groups due to facilitative and non-facilitative influence from Russian and Norwegian. Whether transfer from Russian occur with regard to learners' dominance in this language remains to be an open question. Only a handful of studies focused on the effect of dominance and language use on CLI in L3 acquisition. So far, we deal with conflicting findings: while the study of Lloyd-Smith et al. (2017) reported that German-Turkish bilingual speakers with a higher HL use score tend to be perceived less German sounding than their peers with a low score, the study by Lloyd-Smith et al. (2021) found that syntactic CLI is unrelated to overall dominance in the majority language or HL use.

To investigate the crosslinguistic influence in the acquisition of subject-verb agreement and articles in L3 English, we implemented an Acceptability Judgement Task (AJT), a widely used quantitative method in L3A research used to investigate speaker's intuition about the well-formedness of specific sentences. All participants completed a subset of Oxford Proficiency test so that we could match the participants from different language groups by

their proficiency level in English. Additionally, a language background questionnaire was conducted with the bilingual group to account for the dominance and language use patterns.

This thesis is structured as follows: the following chapter introduces the theoretical background that informs the current study, including the models of CLI in L3A and empirical evidence. Chapter 3 discusses cross-linguistic variation in English, Norwegian, and Russian in regard to the linguistic properties tested in this thesis. Chapter 4 focuses on the design of the study, outlines the research questions and predictions. In Chapter 5, the results of this study are presented along with the statistical analysis, which is followed by the discussion presented in Chapter 6. The conclusion and the limitations of the present study are featured in Chapter 7.

## **2 Theoretical background**

In this chapter, I present the theoretical background that informs the current study. We will start our discussion with learning more about the target population – heritage speakers. Next, in section 2.2, we will delve into the models of CLI in L3A and empirical evidence supporting different accounts. In section 2.3, we will focus more on additional factors influencing the acquisition of the L3. Finally, section 2.4 provides a summary of key ideas covered in this chapter and reflects on the question of where we are now in our understanding of the nature of CLI in L3A.

### **2.1 Heritage speakers as L3 acquirers**

The category of L3 learners is not homogenous as this term comprises both speakers acquiring their two previous languages in naturalistic settings, such as simultaneous and early sequential bilingual, and those who learnt their L2 in a more explicit manner in the classroom settings.

Even simultaneous and early sequential bilinguals differ in their L1 and L2 outcomes as some may be balanced and some more dominant in one of the previously acquired languages. When investigating the issue of cross-linguistic influence in L3/Ln acquisition, it is crucial to determine previous linguistic experience of the bilingual speakers as early-acquired languages may affect the acquisition of L3 differently based on a variety of factors, language dominance and use being one of them (more on that in section 2.4.2).

The bilingual population in scope of this study can be described as heritage speakers. Heritage speakers (HS) are bilinguals who acquire their heritage language (HL) from early childhood either before or alongside the societal majority language (Lloyd, 2020). Heritage speakers do not have a homogeneous linguistic profile and the acquisitional outcomes in HLs vary from one individual to another. While in some cases heritage speakers are indistinguishable from the monolinguals, in certain instances their performance significantly differs from the expected monolingual baseline (Polinsky & Scontras, 2020).

The differential nature of HS linguistic outcomes may be explained by bilingualism itself and the effect of the dominant language on the development of linguistic system in a weaker HL, especially under limited input conditions. Based on what we know a shift in dominance from HL to societal language (SL) takes place within 2–3 years of L2 exposure (Oller et al., 2011).

The majority of the bilingual speakers participating in the present study are simultaneous and early sequential bilinguals residing in Norway who either were exposed to both Norwegian and Russian from birth or started learning Norwegian in early childhood at kindergarten level. Since all bilingual children participating in this study reside in Norway and study at public schools with Norwegian as the language of instruction, Norwegian is likely to become a stronger language for them, while heritage Russian will appear to be weaker. However, their proficiency/dominance in Russian could differ based on their previous linguistic experience and current exposure and use of Russian. Therefore, one of the objectives of the current study is to investigate whether heritage language use affects the amount of CLI from this language in L3 acquisition.

## **2.2 Models of CLI in L3A**

The process of third language acquisition is not fundamentally different from the acquisition of L1 or L2 as any language learning process is learning by parsing where the learners are sensitive to the linguistic cues in the target language (Westergaard et al., 2016). However, it is hard to argue with the fact that there is a crucial difference between the process of learning L2 and L3/L<sub>n</sub>, which is reflected in the number of previously acquired linguistic systems that have potential to influence the acquisition of a new language.

In general terms, there are two possibilities with respect to the source of transfer in L2 acquisition: it either comes from the L1 or that there is no transfer at all (Puig-Mayenco, et al., 2020). The picture in L3/L<sub>n</sub> acquisition is more complex as there are four logical possibilities:

(1) there is no transfer; (2) transfer comes solely from the L1; (3) transfer comes exclusively from the L2; (3) transfer may come from both previously acquired grammar, either as in form of a wholesale transfer or property-by-property (Puig-Mayenco et al., 2020). The above-mentioned principles have been articulated into different models of L3 acquisition, which have all found some support in the studies published within the last two decades.

In a nutshell, all models of L3 Acquisition can be divided into two major categories: a) models that advocate for a default source of transfer where the order of acquisition is the key determining factor; and b) models positing that the process of L3 acquisition can be influenced by both languages based on typological/structural proximity. The latter category can be subdivided into models arguing for wholesale vs property-by-property transfer.

In the next section, I will provide an overview of the main models of L3 acquisition in an attempt to get a better grasp of the principles involved in L3A and the role previously acquired languages play in its process.

### **2.2.1 A privileged role of the L1**

The first hypotheses developed in the field of L3A were known as default models or order of acquisition models. The supporters of this approach believe that the source of crosslinguistic influence is selected by default as learners acquiring the L3 will rely exclusively on one of the previously acquired linguistic systems to facilitate the learning process of a new one.

Some researchers hypothesized that the learners' first language has a privileged role in the acquisition of L3. Although the idea of a privileged status of L1 has never been formalized, there were studies (Herms, 2010, 2015; Jin, 2009; Na Ranong and Leung, 2009) that evaluated the possibility of this hypothesis and even found some supporting evidence.

Jin (2009) conducted an empirical study of L3 acquisition of Norwegian objects by L1 Chinese – L2 English speakers. Chinese is not only typologically different from English, it also differs in regard to the investigated property as it allows null subject due to it being a topic-prominent language, while Norwegian and English are both subject-prominent languages. The results of the study indicate that the learners displayed difficulty in rejecting the null object sentences in Norwegian pointing to a strong non-facilitative influence from L1 Chinese.

The study of Herms (2010) investigated the acquisition of the verb movement in L3 English by Arabic-French bilingual speaker. Since both French and Arabic display verb movement in the structures with frequency adverbs and negation, it was predicted that L3 English learners

will receive negative influence from either L1 or L2. The results revealed that the L3 learners' accuracy score was negatively influenced only by their L1 Arabic which was used as the argument in favour of absolute transfer of L1 at the initial stages of L3 acquisition. Similar findings were reported in the study of the null subject parameter by Hermas (2014) as L1 Arabic was found to be the dominant source of transfer for the learners of L3 English.

Even though we deal with some supporting evidence of L1 Effect hypothesis, the literature provides little rationale as to what could explain the L1 default effect. Puig-Mayenco et al. (2018) suggest that privileged role of L1 could be explained by the fact that "it occupies a more accessible and economic blueprint for other languages to be learned" (Puig-Mayenco et al., 2018, p.34). Truscott and Sharwood Smith (2019) theorise that high resting activation levels could also result in stronger influence of the L1.

### **2.2.2 The L2 status factor**

In the previous section we have reviewed some studies that found support for a privileged status of L1 in CLI source selection process. However, there are numerous works that report contrary findings and support a special status of L2 (e.g., Bardel & Falk, 2007; Bayona, 2009; Berends et al., 2017; Falk & Bardel, 2011).

The hypothesis about the special status of L2 in L3A was formalized in the L2 Status Factor model that was first proposed in the study of Bardel and Falk (2007) who investigated the placement of negation in L3 Swedish and L3 Dutch. All participants in their study were speakers of at least one V2 and one non-V2 language. It was found that the speakers whose L2 was V2 outperformed the group that spoke V2 language as their L1. The authors suggested that such findings are explained by a privileged status of the L2 as the source of morpho-syntactic transfer in L3A. Support for this theory has been found in multiple studies on L3 acquisition (e.g., Bardel & Falk, 2007; Bayona, 2009; Berends et al., 2017; Falk & Bardel, 2011) testing for different features (e.g. grammatical gender, placement of object pronouns and negation) and language combinations.

The theoretical rationale behind the L2 or foreign language default effect is grounded in the distinction between implicitly acquired native languages and explicitly learnt foreign languages. L2 Status factor is also supported by research in the field of neurolinguistics and aligns with Paradis' (2009) distinction between declarative vs procedural memory, which argues that the grammars of native languages and languages acquired after puberty are sustained by different memory systems. Under this assumption, the L2 is more likely to

influence L3 acquisition because the L2 and other subsequently learnt languages are mediated by declarative memory, while the L1 is sustained by procedural memory.

The original version of the L2SF has been criticised for not accounting for the scenarios when the L2 is acquired early in life or when a speaker has substantial metalinguistic knowledge of the L1. To address this limitation, the model has seen some refinement in recent years to account for situations when the distinction between implicit L1 competence and explicit L2 knowledge is not so clear-cut (Puig-Mayenco et al., 2018). The refined version of the L2SF model has been presented in the study of Falk et al. (2015) that found a positive correlation between the degree of metalinguistic awareness and facilitative influence from the L1. The researchers concluded that the L2 effect is only expected if a learner has little metalinguistic knowledge in the L1 and acquired their second language explicitly in formal settings. Thus, the L2 can lose its default status when speakers acquire their L2 in early childhood or when there is shift in dominance towards the L2 (Jensen, 2022). According to Bardel and Sánchez (2017), which language the learner's mind will refer to as a source of transfer will depend on individual differences in working memory capacity and attention control that are involved in the process of comparing the L3 input to the corresponding representations available in previously acquired grammars.

### **2.2.3 The Cumulative Enhancement Model**

Contrary to the default source of transfer hypotheses, the Cumulative Enhancement Model proposed by Flynn et al. (2004) argues that none of the previously acquired languages has a privileged role in the acquisition of the subsequent languages. According to this model, both L1 and L2 remain available to L3 learner and they can either enhance L3/Ln acquisition or remain neutral. In other words, it is predicted that cross-linguistic influence is always cumulative in nature and cannot have a non-facilitative effect. Additionally, CEM proposes that grammar is never transferred at its entirety, implying that transfer is selective and takes place at the level of linguistic properties, when the parser identifies a linguistic representation in the previously acquired grammar that can facilitate the acquisition of this property in the target language.

The empirical evidence in support of this model comes from Flynn et al. (2004), a study of restrictive relative clauses in L1 Kazakh / L2 Russian / L3 English, where English is similar to Russian in respect to the feature under investigation, but differs from Kazakh. The researchers compared the group of L3 learners to two groups of L2 learners – those who

spoke Japanese and Spanish as their L1s (data used for L2 group was first reported in studies of Flynn, 1983, 1987). While Spanish is head-initial like English and Russian, Japanese is head-final like Kazakh. Thus, if the L3 learners received non-facilitative influence from Kazakh, the learners would be expected to pattern with the Japanese speakers, while a match with L1 Spanish group could be explained if the cross-linguistic influence came from facilitative Russian. The results show that the L3 group resembled the Spanish–English group and differed from the Japanese–English group which indicates facilitative influence from L2 Russian. Although these findings are compatible with L2SF model as well, the authors suggest that structural similarity is a better predictor of the participants’ behaviour than the order of acquisition.

In a follow-up study, Berkes and Flynn (2012) present further evidence in support of this model. This time, the authors investigated the production of relative clauses by Hungarian L1/German L2 learners of English L3 and L1 German L2 English. In regard to the investigated property, German differs from English and Hungarian; meaning that, contrary to the first study, the L2 poses conflicting evidence, while L1 resembles the L3. The results of the study indicate facilitative transfer from Hungarian L1 in the acquisition of L3 English and corroborate the CEM.

#### **2.2.4 The Typological Primacy Model**

We continue our discussion of the similarity driven approach to crosslinguistic influence in L3 Acquisition. It was earlier mentioned that models that fit in this category can be subdivided into model of either full or property-by-property transfer.

The first attempt to conceptualise the idea of full transfer from the most typologically close language in the early stages of the acquisition of the L3 was made by Leung (2003). Leung was presumably the first to extend the principals of FT/FA hypothesis of Schwartz and Sprouse (1996) to the field of L3 acquisition. However, the idea of full transfer was later abandoned by the author in the study of L3 French acquisition by Cantonese–English bilinguals (Leung, 2005) that reported evidence in support of partial transfer in L3 acquisition.

The ideas of FT/FA hypothesis and the role of typological proximity in the transfer source selection were later brought up in the Typological Primacy Model (TPM; Rothman, 2010, 2011, 2015). According to this theory, all previously acquired languages are available for



transfer, while (psycho)typological proximity determines which language is going to be transferred. In other words, a parser is expected to make a full copy of the linguistic system of the language that is typologically closer to the target one, which will then constitute the initial state of L3 grammar.

In recent years, the model has undergone some refinements. The overall typological primacy has been replaced by a hierarchy of linguistic cues that the parser will rely on when determining which of the previously acquired languages should be transferred (Rothman, 2013). The constituents of this hierarchy are presented below:

Lexicon => Phonology => Morphology => Syntax

Following this hierarchy, the parser starts evaluating the lexicon, and if there is no indication of typological similarity between L3 and one of the previously acquired languages at this level, the parser will move to the next one, until the parser decides which of the two languages to make a copy of. In case there is no straightforward typological similarity at the lexical level, linguistic/structural similarity will be the determining factor in selecting the source of transfer (Westergaard, 2021b).

The supporters of TPM argue that wholesale transfer is more reasonable than property-by-property transfer based on the principles of cognitive economy and cognitive processing factors inherent to the bilingual mind. According to Rothman (2019), full transfer is more economical a priori since bilingual mind already has to deal with inhibition to suppress the effect of activation of the other languages. This, however, remains to be a matter of much controversy as not all researchers agree that full transfer is somehow less costly than partial transfer. For instance, Westergaard (2021a) argues that copying a whole linguistic system is less economical than adding the feature on a property-by-property basis as it involves the mechanism of unlearning. Unlearning requires being exposed to negative evidence that is salient enough to be processed by learners to start restructuring their interlanguage system which is seen to be more challenging than adding new features based on positive evidence from the input (Jensen, 2022).

Although TPM is a wholesale transfer model, it does not eliminate the possibility of crosslinguistic influence from other languages at later stages of acquisition. Rothman (2019) refers to this process as secondary transfer and argues that if initial wholesale transfer is nonfacilitative and L3 restructuring is thus required, the property from the other language may

indeed be transferred instead of relearning (Rothman et al., 2019). Moreover, the authors do not extend the wholesale transfer principle of TPM to the acquisition of subsequent languages (L4/Ln) as it is stated in Rothman (2019): “L3 experiences of non-facilitation might very well mean that full transfer will be disregarded as a viable option when the mind is an experienced multilingual one.” (Rothman et al., 2019, p.157). In other words, once a learner becomes familiar with the possibility of more than one source of crosslinguistic influence, the acquisition is more likely to proceed in a property-by-property manner. Consequently, the key difference between property-by-property and full transfer accounts is their predictions about the very beginning of the acquisition process (Jensen, 2022).

Supporting evidence for the TPM model has been reported by many studies of CLI in the domain of morphosyntax at initial stages of L3A involving different language combinations and grammatical features. Although most of these studies focus on language pairings where two Romance languages and English are involved (Ionin et al., 2011; Rothman & Cabrelli Amaro, 2010), there is a growing body of research focusing on more varied language combinations such as Tuvan/Russian/English (Kulundary & Gabriele, 2012), Polish/French/English (Wrembel, 2012), and Uzbek/Russian/Turkish (Özçelik, 2013) that also report findings in support of this model.

### **2.2.5 The Linguistic Proximity Model**

The Linguistic Proximity Model (LPM) proposed by Westergaard et al. (2017) presents a different approach towards explaining the nature of cross-linguistic influence in L3 acquisition. The authors argue that all previously learnt languages have the potential to influence the acquisition of a third language, which differs this model from the language default models discussed earlier in this chapter. The LPM predicts that crosslinguistic influence occurs when a certain linguistic property receives supporting evidence from one or both of the previously acquired languages, regardless of typological similarity between the languages or the order of acquisition.

According to this model, the learning occurs by parsing, just like in L1 and L2 acquisition. The parser will evaluate linguistic proximity of the target structure with previously acquired linguistic representations to determine which structure will be used in the development of the L3 interlanguage system (Westergaard et al., 2017).

Since the moment the model was proposed, there have been some refinements in regard to what defines linguistic proximity (LP); the latest version of the model explains the notion of LP the following way:

‘In the competition between the different activated structures from the previously acquired languages, linguistic proximity will be measured as the amount of abstract structure shared between (the current version of) the L3 and the previously acquired languages. However, the strength of activation may be affected by a number of these other factors, sometimes to the extent that they override linguistic proximity.’

(Westergaard, 2021b, p. 505)

In other words, even though linguistic proximity determines which structure will be chosen by the parser, factors such as proficiency, saliency, construction frequency, age, metalinguistic knowledge, context of use, etc. also play an important role in the L3/Ln acquisition process.

The main difference between the LPM and the TPM models is that the former argues crosslinguistic influence occurs on a property-by-property basis, rather than in one fell swoop. The authors of the model elaborate this idea further arguing that *anything can transfer, but not everything does transfer* (Westergaard et al., 2023) referred to as Full Transfer Potential. The authors of the model reject the notion of cognitive economy of full transfer; instead, they posit that a property-by-property basis is more efficient, as simultaneous activation of two linguistic systems is cognitively less costly than fully inhibiting one of the languages, which is implied by full transfer account. Moreover, piecemeal transfer does not require a cognitively costly process of unlearning the structures that present an area of mismatch between the copied linguistic system and the target language. In many ways, the LPM model shares many similarities with The Scalpel Model proposed by Slabakova (2017) that also argues against the notion of wholesale transfer and posits that both previously acquired systems remain available for the parser to extract similar structures with a scalpel-like precision. However, due to its similarities with the LPM, the Scalpel Model is generally not reviewed as a separate model of CLI in this thesis.

Since the LPM predicts that both previously learnt languages are co-activated and compete for being used in the development of L3 system, the crosslinguistic influence can be both facilitative and non-facilitative. Facilitative influence is expected in case of structural

similarities between the previously acquired languages and the L3, while non-facilitative influence is predicted in a situation when ‘learners misanalyse L3 input (and/or have not had sufficient L3 input)’ (Westergaard et al., 2017, p. 671). Moreover, non-facilitative influence can occur when learners are processing for production, especially at the initial stages of acquisition when learners have not yet received enough input in the target language. According to Westergaard (2021), non-facilitative influence is expected to occur more often in production than in comprehension, since when ‘the target representation is too weak, learners will typically use a structure from one of the previously acquired languages.’ (Westergaard, 2021a, p. 389). In such scenarios it is plausible that typological or lexical similarity could override structural similarity.

Evidence to support this model mostly comes from studies investigating L3 acquisition of English by Russian-Norwegian bilinguals. Russian and Norwegian are two typologically distant languages, while Norwegian is typologically closer to English. The LPM was first introduced in Westergaard et al. (2017) study of Russian-Norwegian child bilinguals acquiring L3 English. The study focused on word order conditions that share both similarities and differences between the target languages: adverb-verb word order, in which English behaves similarly to Russian but is distinct from Norwegian, and subject-auxiliary inversion in *wh*- questions, in which English resembles Norwegian but differs from Russian. The performance of the bilingual group was compared to two age-matched monolingual control groups: L1 Norwegian and L1 Russian learners of English. The results of the study show that the performance with subject-auxiliary inversion was at ceiling, indicating that the property had already been acquired by all learners, while the performance with adverb-verb was in between the two L2 control groups, which made the authors argue that the bilingual speakers were simultaneously influenced by both previously learnt languages.

Although the LPM model is relatively nascent, the empirical support for it has been found in recent studies involving different language combinations and linguistic domains. For instance, the study of Clements and Dominguez (2018) investigated the acquisition of L3 Chinese null and overt subjects by L1 English/L2 Spanish speakers, in which the authors reported evidence in favour of property-by-property transfer from both languages. Another study of Jensen et al. (2021) investigated CLI in L3 acquisition of English by Russian–Norwegian bilingual children across 3 linguistic domains (morphology, syntax and syntax-semantics). Although the results were not homogeneous for all the properties tested, overall, the findings indicated that CLI occurs on a property-by-property basis, and both languages remain available for CLI.

## 2.3 Additional factors affecting CLI in L3A

The discussion of the studies presented above raises an important issue that when we discuss the factors that may play a role in the process of transfer source selection, one should not only limit it to order of acquisition or the linguistic/typological proximity. In the following sections, we will shed light on two crucial factors, such as *linguistic property complexity* and *language dominance*, that have been found to play an important role in the process of language acquisition.

### 2.3.1 Linguistic property acquisition difficulty

The difficulty level of a particular linguistic property is one of the factors that may constrain cross-linguistic influence in L<sub>n</sub> acquisition. So far, the field of L3 acquisition has not paid much attention to the role of this factor, although decades of SLA research show that some features are inherently more difficult to acquire than others due to factors related to salience and frequency in input.

The Bottleneck Hypothesis (Slabakova, 2008, 2013) addresses the question of why certain linguistic properties are harder to acquire than others. Following this theory, functional morphology is a bottleneck of foreign language acquisition as it gives rise to the considerable difficulty for L2 learners. The hypothesis is based on the assertion that the acquisition of syntax, semantics, and pragmatics proceeds with less difficulty while functional lexicon encodes non-transferable features which make up the differences between the languages and thus have to be learnt explicitly as other lexical items. Even though the Bottleneck Hypothesis was initially proposed in the field of SLA, it is possible to extend its principles to the field of L3/L<sub>n</sub> acquisition.

The reason why the difficulty of the linguistic property has not been well researched up to this date in the field of L3A is explained by the fact that most studies focus on one linguistic property/domain, while the investigation of this question requires the comparison of several properties across different domains. However, there are a few studies that have drawn attention to the importance of this variable in L3A. The earlier-mentioned study of Jensen et al. (2021) investigated CLI in L3A of English by Russian–Norwegian children across three linguistic modules (morphology, syntax and syntax-semantics) and seven properties respectively. The researchers found CLI across all examined linguistic domains, however, it was found that the participants' accuracy score was largely influenced by complexity and

saliency of the target properties. The accuracy score for topicalization and copula was almost at ceiling for the majority of the participants due to relative saliency of these properties, while abstract genericity turned out to be significantly difficult for all groups which can be explained by low frequency of this property in the input. The authors concluded that there are other factors, besides linguistic similarity, that have an impact on CLI in L<sub>n</sub> acquisition.

Therefore, we may conclude that the acquisition of a new language is affected not only by facilitative or non-facilitative influence from previously acquired linguistic systems, but also by factors such as saliency and complexity of the linguistic properties. Future studies should take these findings into account when interpreting the crosslinguistic effects.

### **2.3.2 Language Dominance**

The concept of language dominance is not novel for the field of multilingualism, especially in the context of heritage speakers (HS). Earlier, in the section dedicated to HSs, we have learnt that this population is often more dominant in the societal language, while their competence in the heritage language may vary across individuals and different language domains. With multiple languages in bilingual mind, there is always a possibility that these linguistic systems will influence each other which can manifest itself in form of delay or acceleration in the language development, and in some cases can lead to divergent attainment (Paradis & Genesee, 1996). Recent studies (Rodina & Westergaard, 2017; Schwartz et al., 2015; Van Dijk et al., 2021) report that directionality of crosslinguistic influence is often related to dominance as bilingual speakers in these studies exhibited influence from the stronger language to the weaker language.

The concept of dominance has only recently been applied to L3 research, however, there are a few studies to support its importance for explaining the crosslinguistic effects in L3 acquisition. Kupisch et al. (2013) found that cross-linguistic influence in the acquisition L3 English articles by heritage speakers of Turkish came primarily from their more dominant language German. Similar findings were reported in the study of foreign-accented speech perception conducted by Lloyd-Smith et al. (2017) showing that German-Turkish bilingual speakers with a higher Turkish Use score tend to be perceived less German sounding than their peers with a low HL use score.

More studies investigating cross-linguistic influence in the acquisition of L3 phonology also find support for a dominance driven approach to the nature of CLI. Lloyd-Smith et al. (2019,

2020) investigated Italian-German bilinguals' perceived accent in L3 English and found that the bilinguals' accent in English was mostly perceived as German, that is the majority language for the given population, although speakers with a high Italian use score exhibited a noticeable effect from Italian in their accent.

Supporting evidence has also been found for the effect of dominance in syntactic CLI in L3 acquisition. The study by Fallah et al. (2016) investigated the acquisition of possessive structures in English (-'s and possessive determiners) by three groups of bilinguals (two groups with L1 Mazandarani/L2 Persian and one group with L1 Persian/L2 Mazandarani). While Mazandarani and English pattern similarly in the target structures, Persian marks possessive differently as it occurs in post-nominal position. The results of the study showed that transfer stems from the bilinguals' dominant language of communication, regardless of order of acquisition or structural similarity of the languages involved. Two years later, the authors conducted a study investigating the effect of the dominant language of communication in the acquisition of attributive adjectives (Fallah & Jabbari, 2018) by Mazandarani/Persian bilinguals. In parallel to the previous study, the dominant language of communication was found to be the main source of influence.

In light of these findings, the researchers proposed dominant language hypothesis that holds that 'the dominant language of communication determines the source of CLI at the initial stages of L3 acquisition, irrespective of its status as an L1 or L2' (Fallah & Jabbari, 2018, p. 210). According to the authors of this hypothesis, the theoretical rationale behind it is supported by Activation Threshold Hypothesis proposed by Paradis (2004) that predicts that frequently used items are better retained and easily reactivated when needed. As far the L3 acquisition is concerned, the language that is used more often on a daily basis will have a lower activation threshold and thus should be more accessible for transfer.

In spite of a body of evidence in favour of language dominance effects in L3A process, there are studies (Lloyd-Smith et al., 2021; Puig-Mayenco et al., 2018, 2020) that found no correlation between a greater language dominance in one of previously acquired languages and the amount of crosslinguistic influence coming from the respective language. One of such works is a recent longitudinal study by Puig-Mayenco et al. (2022) that investigated L3 acquisition of English negative quantifiers and negative polarity items by Spanish-Catalan bilinguals, some more dominant in Spanish, some in Catalan. The findings show that there are no significant effects of language dominance on the acquisition of a subsequent language

since Catalan, a source of non-facilitative influence, was the sole source of transfer for the bilinguals, no matter whether it was bilinguals' more dominant language or not. The authors concluded that the findings are better explained by the TPM, as Catalan is typologically closer to English at the phonological level.

Following the discussion presented in this section, we suggest that language dominance might be a factor conditioning the selection of source of cross-linguistic influence, however, there are conflicting findings as to what role language dominance plays in L3A process which can be partially attributed to the difference in methodology (the way researchers measure/operationalise dominance) and due to the lack of studies testing this question. The present study aims at exploring whether language dominance, or in our case the amount of heritage language use, has any effect on CLI from HL in L3A.

## **2.4 The current state of research in L3A**

In recent years, the field of L3A has seen a significant increase in studies investigating how previous linguistic knowledge may influence the acquisition of a subsequent language. In the previous sections of this chapter, we have reviewed the most prominent hypotheses and models developed by the researchers in the field. Before we move on to the next chapter, it seems important to wrap up this section with an interim discussion and reflect on the question of where we are now in our understanding of the factors contributing to the source selection process in L3A.

We have discussed so far that there are models that view order of acquisition as an important factor determining the source of CLI. While some researchers suggest that learners L1 maintains a privileged role in affecting the acquisition of L3/Ln (Jin, 2009; Hermas, 2010, 2015), others (Bardel & Falk, 2007; Kulundary & Gabriele, 2012) have found evidence in favour of the L2 status factor (L2SF), which suggests that the L2 is the default source of transfer. These hypotheses were the pioneering ideas in the field of L3A and although they found some support in the empirical studies within the last two decades, they fail to account for the significant number of studies reporting that the acquisition of Ln may be simultaneously affected by both previously learnt languages irrespective of the order of acquisition.



The other group of researchers argues that there are no language defaults in transfer source selection as both previously acquired linguistic systems are available for the learner when exposed to a new language. Under this assumption, source selection of CLI is similarity driven where the learner's parser will refer to a language that is more typologically/structurally similar to the target language. Here we distinguished between the models positing wholesale vs property-by-property transfer. The Typological Primary Model (TPM) (Rothman 2011, 2015) claims that transfer can come from either the L1 or the L2 and it can be of both facilitative and non-facilitative nature, however, only one language is selected as the initial source of transfer in L3 morphosyntactic representation (Rothman et al., 2019). In contrast to the full transfer stance of TPM model, The Scalpel Model (Slabakova, 2017) and LPM Models (Westergaard et al., 2017) were formulated arguing that L3 learners have access to all previously acquired linguistic systems as they get activated when the learner finds a feature or structure in the L3 input similar to an L1 or L2 property.

To illustrate the difference between the models more vividly, the table below provides a summary of the key points.

*Table 1. Main characteristics of the models reviewed*

|                      | Source of transfer<br>(L1 vs L2) | Type of transfer<br>(fac. vs non-fac.) | Type of transfer<br>(full vs partial) | Primary Factor                 |
|----------------------|----------------------------------|----------------------------------------|---------------------------------------|--------------------------------|
| <b>The L1 Factor</b> | L1                               | Both                                   | Full                                  | Order of acquisition           |
| <b>The L2 Status</b> | L2                               | Both                                   | Full                                  | Order of acquisition           |
| <b>CEM</b>           | Both                             | Facilitative                           | Partial                               | Cumulative language experience |
| <b>TPM</b>           | Both                             | Both                                   | Full                                  | Typological Primacy            |
| <b>LPM</b>           | Both                             | Both                                   | Partial                               | Abstract structural Similarity |

(adapted from Ramos Feijoo J. & García Mayo M., 2021, p. 12)

After reading the discussion presented above one will inevitably wonder which model better accommodates the findings of the research on L3A. This question is by no means an easy one to answer, however, there were attempts to address it. For instance, Puig-Mayenco et al.

(2020) conducted a systematic review of 71 studies of crosslinguistic influence at the morphosyntactic level of L3 acquisition, published between 2014 and 2017, in attempt to establish which of the previously postulated models accounts better for the reported findings. It is worth mentioning that neither the Scalpel Model nor the Linguistic Proximity Model were considered by the authors as they had been proposed just a year prior to the moment article got published.

The researchers found that nonfacilitative influence was reported in 92.5% of the reviewed studies and similarity-driven crosslinguistic influence in 60.5% of the studies. Based on these findings, the authors argue that the order of acquisition, as postulated by the advocates of the L2 Status Factor or the default L1 transfer, can barely be considered the main factor in the selection of the source of transfer in L3/Ln acquisition. The reason for that is that L3 transfer models incorporating the idea of language defaults fail to accommodate extensive body of evidence suggesting that transfer can come both from an L1 or an L2.

The researchers concluded that linguistic similarity is a strong motivator for crosslinguistic influence and that it can be both facilitative and non-facilitative. However, according to the authors, none of the L3 models is capable of capturing completely the nature of CLI in L3 acquisition.

To sum up, the vast majority of the research studies in the field of L3A strongly imply that crosslinguistic influence can be both facilitative and non-facilitative and come from all previously learnt languages, which is quite problematic for the default transfer models and hypotheses (L1/L2 Factor) and the Cumulative-Enhancement Model.

However, we cannot conclude that similarity-driven models can account for all empirical evidence either. The study of Bohnacker (2006), for instance, reported that L1 Swedish–L2 English sequential bilinguals acquiring L3 German relied on the non-facilitative word order from English rather than the facilitative Swedish word order in the acquisition of German. Similarly, Bardel and Falk (2007), who investigated the placement of negation at the initial stages of L3 acquisition of Dutch and Swedish, found that the group of learners with V2 L2 (hence a non-V2 L1) performed significantly better than the other group (V2 L1 and non-V2 L2). The findings reported in these studies cannot be fully explained by any of the similarity-driven models, and from all postulated models of L3A, L2 Status Factor accounts better for these results.

Such conflicting evidence is exactly what makes it so problematic to claim that one of the proposed models in its current state provides a full picture of what crosslinguistic influence in L3 acquisition looks like. The context of acquiring a new language is complex and every learner's linguistic experience is unique and cannot be generalised. In order to account for this complexity, the models existing today should allow for a more varied landscape of L3A process, whereas future studies should find space to account for various intra-linguistic (e.g., salience, input frequency, linguistic property acquisition difficulty) and extra-linguistic factors (e.g., proficiency, language dominance) that might affect crosslinguistic influence.

### **3 Crosslinguistic differences in Norwegian, Russian and English**

The current study investigates crosslinguistic influence in L3A of English by Russian–Norwegian bilingual children. As mentioned previously, the aim of this study is to examine how bilinguals' previously acquired languages influence the developing L3 system which is done by testing the acquisition of subject-verb agreement and articles.

The acquisition of articles in English has been reported to be notoriously challenging for L2 learners, especially for those who are L1 speakers of article-less languages such as Russian (Ionin et al., 2003; Ionin et al., 2006; Cho & Slabakova, 2014); while subject-verb agreement has been found to pose a great difficulty for L1 Norwegian learners of English until higher levels of proficiency (Jensen et al. 2020), which could be attributed to the fact that Norwegian does not have subject-verb agreement.

In the following sections, I elaborate on the areas of (mis)mismatch between English, Norwegian and Russian with respect to the chosen properties. It is worth mentioning that Norwegian recognizes two varieties of the written language: Bokmål and Nynorsk. The present study focuses only on how the linguistic properties are expressed in Norwegian Bokmål.

#### **3.1 Article system in English, Norwegian and Russian**

Before we have a closer look at how article system is represented in English and Norwegian and what are the means of encoding (in)definiteness in Russian, we need to acknowledge that this section does not attempt to cover all aspects of this linguistic area. First of all, the topic is rather complex and the scope of this study simply would not allow us to go through it in much

detail. Moreover, since the focus of the present thesis is on crosslinguistic influence in L3 acquisition, the following discussion will focus primarily on the differences between the three languages to which this study is narrowed, namely I will review how (in)definiteness and genericity are expressed in the respective linguistic systems.

### 3.1.1 (In)definiteness

(In)definiteness is a universal semantic concept that is related to the identifiability of the referent in discourse. According to Trenkic (2009), a referent is considered to be definite when ‘the speaker intends to refer to it, and expects the referent to be uniquely identifiable to the hearer’ (Trenkic, 2009, p. 117). The distinction between a definite and an indefinite reference is an important element of communication, which makes it universally present in natural languages (Cummins, 1998). Definiteness is expressed differently across languages. Although the expression of (in)definiteness is traditionally linked to the presence of articles, there are many languages that do not have article system and yet they express this category using other lexical, syntactic and pragmatic means.

Both English and Norwegian have a fully grammaticalized article system that allows to mark definiteness overtly on noun phrases. Russian, however, is an article-less language which adopts other methods to express this category. In the following section, I will discuss how definiteness and indefiniteness is expressed in the languages under discussion.

#### 3.1.1.1 English

According to Ionin (2003), all languages that have two-way article system can be divided into two groups: language where articles are distinguished on the basis of (i) specificity, (ii) definiteness. In English, the choice of the article depends on definiteness, regardless of whether the context is specific or non-specific: the definite article *the* is used in definite contexts and the indefinite article *a* is used in indefinite contexts with singular subjects.

To illustrate the distinction between specificity and definiteness better, we will review the following examples from Ionin et al. (2004).

[+definite, + specific] – **the**

(1) Chris: Well, I’ve bought everything that I wanted. Are you ready to go?

Mike: Almost. Can you please wait a few minutes? I want to talk to *the owner* of this bookstore – she is my old friend.

**[+definite, -specific] – the**

(2) Rose: Let's go out to dinner with your brother Samuel tonight.

Alex: No, he is busy. He is having dinner with *the manager* of his office; I don't know who that is, but I'm sure that Samuel can't cancel this dinner.

In example (1), definite article *the* is used because the referent (the owner) is both definite and specific as it is identified by both the speaker and the recipient. In the next context illustrated in (2), the referent is definite (as it refers to the manager working at Samuel's office), however the manager is unknown for both speakers making it not specific.

Thus, we may conclude that in case the context is definite – a noun phrase will be preceded by the definite article *the*. In contexts when the referent is not definite, the indefinite article *a/an* is used, regardless of whether it is specific or not. The distinction between making indefinite and definite reference with the use of the respective articles is shown in example (3a) and (3b)

(3) a. I read a book yesterday.

b. [I read a book.] The book was interesting.

### **3.1.1.2 Norwegian**

Norwegian noun phrase structure is rather complex compared to English. Norwegian nouns are inflected for number, gender and definiteness. In Norwegian, definiteness is marked by suffixes attached to the stem of the noun they modify, while indefiniteness is expressed by using gender-based articles. There is gender opposition in singular nouns only. The following examples show noun inflections across masculine (4a), feminine (4b), and neuter (4c).

- (4) a. (ei) jente    jenta        jenter        jentene  
*a.F girl        girl.F.DEF    girl.PL        girls.DEF*  
‘a girl’        ‘the girl’     ‘girls’        ‘the girls’
- b. (en) dag        dagen        dager        dagene  
*a.M day        day.M.DEF    day.PL        days.DEF*  
‘a day’        ‘the day’     ‘days’        ‘the days’
- c. (et) eple        eplet        epler        eplene  
*a.N apple      apple.N.DEF   apple.PL      apple.DEF*  
‘an apple’    ‘the apple’   ‘apples’      ‘the apples’

In addition, Norwegian has an interesting linguistic phenomenon known as double definiteness, where definite noun phrases are marked both with the suffixal article and with a free determiner that precedes the noun and its modifier (Anderssen et al., 2018). Double-definiteness typically occurs when the definite noun is premodified by an adjective, in such cases a definite determiner is required. Omission of either the determiner or the suffix is considered grammatically incorrect in this scenario. Moreover, a determiner and adjective must agree with the head noun in gender, number, and definiteness, as in (5).

- (5) a. den        kjedellige    boka  
*the.F/M    boring.DEF   book.DEF.SG.FEM*  
‘the boring book’
- b. den        store        bilen  
*the.M      big.DEF     car.DEF.SG.M*  
‘the big car’
- c. det        store        huset  
*the.N      big.DEF     house.DEF.SG.N*  
‘the big house’

- d.    de        store        hundene  
       *the.PL   big.DEF   car.DEF.PL*
- ‘the big dogs’

Overall, Norwegian is similar to English in terms of semantic and pragmatic content, as the article choice in both languages is mostly regulated by definiteness and specificity, which makes it easier for L1 Norwegian learners to acquire article system in English. The only difference is that (in)definiteness is realized as articles in English, while in Norwegian both as articles and suffixes.

### 3.1.1.3 Russian

In contrast to English and Norwegian, Russian lacks a grammaticalized article system. Since there is no overt article or morphological inflection that would mark in definiteness, Russian express it using other lexical, syntactic and pragmatic means.

For example, definiteness can be expressed in word order, case alternation, aspectual distinction, or with the help of certain lexical markers (Seres, 2020). However, there is no one-to-one mapping between definite and indefinite articles in English and any of these ways of expressing definiteness in Russian, which makes it difficult for learners with L1 Russian acquire the article system in English.

Word order can influence the interpretation of an NP as definite or specific in Russian. There is a cross-linguistic pattern showing that initial position of the clause carries old/known information (known as theme), while new information will typically be introduced in the final position of the clause (rheme). This theme-rheme contrast is shown in examples (6a) and (6b) taken from Mathiassen (1996, p. 20)

- (6) a. Na        stole        lezhit        kniga  
       *On    table.LOC   lies        book.NOM*

‘A book is lying on the table.’

- b. Kniga        lezhit    na    stole  
       *Book.NOM   lies    on   table.LOC*

The book is lying on the/a table.

As it follows from the examples above, when the subject, *kniga* ‘book’ is used preverbally, it is understood as a definite subject, and when it appears post-verbally, it normally receives indefinite interpretation.

Morphological case can also be used as one of the means to express definiteness in Russian. For instance, alternation between the accusative and genitive case may signal the referential status of the direct object in languages without grammaticalized article system (Ekiert, 2010; Mathiassen, 1996).

While accusative case is used to express definiteness, NPs in genitive case are interpreted as indefinite. This is shown in example (7a) and (7b), where word *sobaka* ‘a dog’ appearing in genitive case denote indefiniteness, while the same word in accusative case receives a definite interpretation.

(7) a. Ja      boyusj      sobaki  
      *I*      *fear*      *dog.GEN*

‘I am afraid of a dog.’

b. Ja      boyusj      sobaku  
      *I*      *fear*      *dog.ACC*

‘I am afraid of the dog.’

Another morphological mean of expressing (in)definiteness in Russian is verbal aspect (perfective vs imperfective). The researchers claim that the direct object of perfective verb received definite interpretation as in (8a), while direct object of imperfective verb (8b) can be interpreted both indefinitely and definitely depending on the context.

(8) a. Masha    sjela      konfety  
      *Masha*   *ate.PF*   *sweets. ACC*

‘Masha ate/has eaten the sweets’

b. Masha    jela      konfety  
      *Masha*   *ate.IPF*   *sweets. ACC*

‘Masha ate/was eating (the) sweets’



Finally, Russian has a number of lexical markers of definiteness and indefiniteness at its disposal. For instance, definiteness can be expressed by demonstratives, anaphoric pronouns, possessive pronouns or definite quantifiers (Nesset, 1999) as they express reference to a contextually identifiable object as in example (9). Examples provided on this page are borrowed from Seres (2020, p. 244 – 245)

(9) a. *Nasha sobaka lajet na ulice*  
*Our dog barks on street*  
 ‘Our dog is barking in the street’

b. *Eta sobaka lajet na ulice*  
*This dog barks on street*  
 ‘This dog is barking in the street’

Quantificational expressions such as *kazhdyj* ‘every’, *lyuboj* ‘any’, *kakoj-to/kakoj-nibudj* ‘some’ have indefinite interpretation, as in (10).

(10) a. *Vasyu iskala kakaja-to studentka*  
*Vasya.ACC looked.for some.NOM.SG.FEM student.NOM.SG.FEM*  
 ‘Some female student was looking for Vasya.’

b. *Vasya opyatj kupil kakuju-nibudj jerundu*  
*Vasya again bought some.ACC.SG.FEM nonsense.ACC.SG.FEM*  
 ‘Vasya bought some useless thing again’

c. *Odna znakomaya prihodila vchera*  
*One.NOM.SG.FEM acquaintance.NOM.SG.FEM came yesterday*  
 ‘One friend came to visit yesterday’

### 3.1.2 Genericity

Genericity is a universal linguistic phenomenon that enables speakers to express generalisations about the world. Although the notion of genericity is universal, its expression varies cross-linguistically (Krifka et al., 1995). Genericity is a complex topic and this thesis cannot cover all its aspects. Therefore, this section aims to present a brief overview of how it is manifested in English, Norwegian and Russian.

#### 3.1.2.1 English

According to Krifka et al. (1995), there are two distinct phenomena that have been classified as genericity: generic NPs that express reference to a kind on NP-level and generic/characterising, sentences which express generalizations about sets of entities or situations.

Kind-referring NPs can take definite singulars (11a) and bare plurals (11c), but not indefinite singulars (11b) or definite plurals (11d). The examples are taken from Hermas (2020). The sign (\*) indicates that the generic reading is not in this context possible:

- (11) a. The dinosaur is extinct.  
b. \* A dinosaur is extinct.  
c. Dinosaurs are extinct.  
d. \* The dinosaurs are extinct.

In this context, the definite singular (11a) and bare plural (11c) express genericity as they both refer to the whole category of dinosaurs as a kind. The NPs in (11b) and (11d) cannot have a generic reading as they do not express reference to a kind meaning.

When it comes to the second type of generics in English, characterising sentences, the source of genericity is the sentence, not the NP. The examples describe a characteristic/habitual behaviour, however, only three (12a), (12b), (12c) out of four contexts can have generic readings.

- (12) a. The tiger lives a solitary existence.

- b. A tiger lives a solitary existence.
- c. Tigers live a solitary existence.
- d. \* The tigers live a solitary existence.

Both the definite (a) and indefinite singular (b) may be interpreted generically, although, it does not eliminate a possibility of a specific reading in this case. The bare plural tigers in (c), on the other hand, can only be generic. The definite plural in (d) normally encodes specificity in English, and therefore cannot have generic reading.

Generic reading is possible not only with referring nouns, but also with mass nouns, abstract nouns and quantifiers (Nedoluzhko, 2013). While nouns in English typically require an article, mass and abstract nouns can appear without the definite article. Some examples include nouns such as life, death, love, etc. Therefore, abstract nouns can appear in bare form expressing genericity in English, as illustrated in example (13).

(13) Life can be difficult.

To sum up, English may express genericity using different types of nominals: definite singulars, indefinite singulars and bare form. The only form that is ruled out of generic context is definite plural.

### 3.1.2.2 Norwegian

The phenomenon of genericity in Norwegian language is not thoroughly studied by the researchers (Kurek, 2017). According to Skrzypek et al. (2022), there are five possibilities to express genericity in Norwegian: definite singulars, indefinite singulars, indefinite and definite plurals and bare nouns. The choice of the form depends on the context.

Kurek (2017) provides the following examples (14) from Faarlund et al. (1997: 52) to illustrate how both singular and plural nouns in definite and indefinite form can have generic reading:

(14) a. En ulv er et rovdyr  
*a.M wolf is a.N hunting animal*  
 ‘A wolf is a hunting animal.’

- b. Ulv-en er et rovdyr  
*Wolf.DEF is a hunting animal*  
 ‘The wolf is a hunting animal.’
- c. Ulv-er er rovdyr  
*Wolves.INDEF are hunting animals*  
 ‘Wolves are hunting animals.’
- d. Ulv-ene er rovdyr  
*Wolves.INDEF are hunting animals*  
 ‘Wolves are hunting animals.’

There is a wide range of examples where bare NPs appear in generic contexts, even though it is generally believed that the bare singular nominals cannot have a generic interpretation in Norwegian (Borthen, 2003).

- (15) Bil er et kjøretøy  
*Car is a.N vehicle*  
 ‘A car is a vehicle.’

Apart from Norwegian being different from English in respect to allowing definite plural nominals having generic reading, there is another area of mismatch – choice of form with abstract nouns. While some abstract and mass nouns can appear in bare form in English, Norwegian requires the definite suffix with this subgroup of nouns (Jensen et al., 2021). This difference is shown in (16).

- (16) Livet kan være vanskelig  
*Life.DEF can be difficult*  
 ‘Life can be difficult’

To sum up the present discussion, it seems that there are no strict rules for expressing genericity in Norwegian since all five noun forms can appear with generic reading. In most

scenarios, the choice of nominal form and context conveying generic interpretation is determined simply by the linguistic intuition (Kurek, 2017).

### 3.1.2.3 Russian

Since there is no overt marking of (in)definiteness in Russian language, bare singular and plural nominals are used in all types of contexts and it is mostly the discourse context that determines whether the NP has definite, indefinite or generic reading (Seres, 2020).

The examples of sentences where nominals have generic interpretation are provided in (17).

- (17) a Kompjuter - eto glavnoje izobrenenie XX veka  
·  
*Computer this main invention XX century*  
‘The computer is the main invention of the XX century’
- b Poljarnye medvedi belye  
·  
*Polar.PL bears white.PL*  
‘Polar bears are white’

Even though Russian does not have a grammaticalized article system, it does behave similarly to English in generic plural context as both do not allow definite plural nominals to appear with generic interpretation, while Norwegian can employ all nominal forms in generic contexts. Moreover, Russian is more similar to English when it comes to expressing genericity with abstract nouns, as both make use of bare nouns in this context, while Norwegian requires using definite nominals in this context.

## 3.2 Subject-verb agreement in English, Norwegian and Russian

Subject-verb agreement is a linguistic property that exists in many languages and is realized in speech when the finite verb conjugates according to the referring subject. When it comes to the language combination researched in this study, subject-verb agreement is expressed differently in English, Russian and Norwegian. Despite being typologically distant languages, Russian and English have some structural similarity in regard to SV agreement as both languages possess a category of grammatical concord which is marked with overt verbal morphology. In contrast to English and Russian, Norwegian does not overtly express

agreement feature on the verbs in present tense, using the same morphology on the verb both with singular and plural subjects.

### 3.2.1 English

Agreement system in English can be described as transparent and easy from a structural perspective. However, despite its perceived simplicity, a high rate of learners struggles with the correct use of subject-verb agreement in English.

In case of lexical verbs, agreement is marked only in present tense. As shown in (18), the lexical verbs in present tense largely coincide with infinitival stem form, with the exception of the cases (19) when they are marked for agreement with 3<sup>rd</sup> person singular subject with a help of inflection –(s).

(18) a. I speak English  
*I speak English*

b. Mary and Lucy speak English  
*Mary and Lucy speak English*

(19) My brother speaks English  
*My brother speak.3SG English*

As mentioned previously in this paper, the focus of the current study is on subject-verb agreement with lexical verbs. However, it should be mentioned that there are a couple of exceptions in regard to how subject-verb agreement is expressed on other categories of verbs. First, auxiliary/copula verb *be* has contrasting forms that mark for all categories of number and person not only in present (*am, is, are*) but also in past tense (*was, were*).

Another exception is that modal verbs do not mark agreement, even when the subject is 3<sup>rd</sup> person singular, which is illustrated in (20).

(20) Lucy should speak to someone  
*Lucy should speak to someone*

### 3.2.2 Norwegian

Norwegian verbs in present tense are marked with the suffix *-r* on the verb. This is illustrated in (21), where the suffix is marked in bold.

- (21) Kari snakker Engelsk  
*Kari speak.PRES English*  
'Kari speaks English'

Since there is no overt morphology agreement in Norwegian, the finite verbs stay in the same form, regardless of the subject's number and person, as shown below in (22) for the verb *snakker* 'speak' appearing with singular and plural subjects.

- (22) a. Jeg snakker engelsk  
*Jeg speak.PRES English*  
'I speak English'
- b. Ole og Kari snakker engelsk  
*Ole og Kari speak.PRES English*  
'Ole and Kari speak English'
- c. Ole snakker engelsk  
*Ole speak.PRES English*  
'Ole speaks English'

### 3.2.3 Russian

Russian is a morpho-syntactically rich language since it expresses the categories of case, number, and gender through inflectional affixes. Verbs in Russian inflect to show contrasts for person (1st, 2nd and 3rd person), number (singular and plural), tense (present, past and future), and gender (masculine and feminine) in past tense. Contrary to the agreement system in English, lexical verbs have to agree with subject not only in Present tense but in all tenses in Russian.

In addition to all mentioned above, Russian possesses two different patterns of conjugating verb, which depends on the ending that the verb takes in infinitive form, which is illustrated in Table 2.

Table 2. Russian verb inflectional system in indicative present tense with verbs *plavatj* – ‘swim’, *krichatj*– ‘scream’

| person          | 1 <sup>st</sup> conjugation                            |                                                         | 2 <sup>nd</sup> conjugation                                 |                                                              |
|-----------------|--------------------------------------------------------|---------------------------------------------------------|-------------------------------------------------------------|--------------------------------------------------------------|
|                 | singular                                               | plural                                                  | singular                                                    | plural                                                       |
| 1 <sup>st</sup> | Ja plyv-u<br><i>I swim. 1SG</i><br><br>‘I swim’        | My plyv-jom<br><i>We swim. 1PL</i><br><br>‘We swim’     | Ja krich-u<br><i>I scream. 1SG</i><br><br>‘I scream’        | My krich-im<br><i>We scream. 1PL</i><br><br>‘We scream’      |
| 2 <sup>nd</sup> | Ty plyv-josh<br><i>You swim. 2SG</i><br><br>‘You swim’ | Vy plyv-jotje<br><i>You swim. 2PL</i><br><br>‘You swim’ | Ty krich-isch<br><i>You scream. 2SG</i><br><br>‘You scream’ | Vy krich-itje<br><i>You scream. 2PL</i><br><br>‘You scream’  |
| 3 <sup>rd</sup> | On plyv-jot<br><i>He swim. 3SG</i><br><br>‘He swims’   | Oni plyv-ut<br><i>They swim. 3PL</i><br><br>‘They swim’ | On krich-it<br><i>He scream. 3SG</i><br><br>‘He screams’    | Oni krich-at<br><i>They scream. 3PL</i><br><br>‘They scream’ |

However, there are exceptions from the rules, when some verbs conjugate partially according to the 1<sup>st</sup> and 2<sup>nd</sup> conjugation, as the verb *bezhatj*.

Table 3. Mixed conjugation verb inflectional system with verb *bezhatj* - ‘run’

| person          | number                                              |                                                      |
|-----------------|-----------------------------------------------------|------------------------------------------------------|
|                 | singular                                            | plural                                               |
| 1 <sup>st</sup> | Ja beg-u<br><i>I run. 1SG</i><br><br>‘I run’        | My bezh-im<br><i>We run. 1PL</i><br><br>‘We run’     |
| 2 <sup>nd</sup> | Ty bezh-ish<br><i>You run. 2SG</i><br><br>‘You run’ | Vy bezh-itje<br><i>You run. 2PL</i><br><br>‘You run’ |
| 3 <sup>rd</sup> | On bezh-it<br><i>He run. 3SG</i><br><br>‘He runs’   | Oni beg-ut<br><i>They run. 3PL</i><br><br>‘They run’ |



Verb forms in past tense do not mark the category of person, however, they mark gender of the subject that the verb corresponds to in singular form.

Table 4. Russian verb inflectional system in indicative present tense with verb *plavatj* – ‘swim’

| number   | gender                |                             |                              |
|----------|-----------------------|-----------------------------|------------------------------|
|          | masculine             | feminine                    | neuter                       |
| singular | plaval<br><i>swam</i> | plaval-a<br><i>swam.FEM</i> | plaval-o<br><i>swam.NEUT</i> |
| plural   |                       | plaval-i<br><i>swam.PL</i>  |                              |

Based on the discussion presented above, we can summarize that English is structurally closer to Russian than Norwegian with regard to subject-verb agreement, since the former languages mark agreement for person and number on finite verbs, while Norwegian does not.

## 4 Current study

This chapter elaborates on the design of the study, the data collection methods and procedures. Section 4.1 presents research questions and predictions that were formulated based on the models and research evidence analysed in the previous chapter. In section 4.2, I describe the experimental tasks employed in this study – the Acceptability Judgement Task, Proficiency test, and Language Background Questionnaire. The summary of the experimental procedure and profiles of the participants are provided in section 4.3. The study has been approved by the Norwegian Centre of Research Data (NSD).

### 4.1 Research Questions and Predictions

The current study aims at examining how the previously acquired languages influence the acquisition of L3 English. In previous sections, I reviewed different models and hypothesis of crosslinguistic influence in L3/Ln acquisition. Following the theoretical framework presented in Chapter 2, there are multiple factors that determine the source of crosslinguistic-influence: order of acquisition, typological/structural similarity, previous cumulative linguistic experience, or language dominance.

This thesis, however, cannot test all these models and hypotheses due to several reasons. First of all, it is not possible to test L1/L2 privileged status hypotheses since the majority of

bilinguals participating in the study are either simultaneous bilinguals or early sequential bilinguals meaning they started acquiring Norwegian in naturalistic settings at the age of 1 at kindergarten level. Moreover, the current study investigates the L3 acquisition past the initial stages, since all participants have been learning English for 6-7 years. With this said, it is not possible to test the predictions made TPM model as it is the model of wholesale transfer at the initial stages of acquisition process and it does not make any prediction about the developmental stages.

Considering the above-mentioned points, the primary questions which this study aims to explore are the following:

**RQ1:** Do both previously acquired languages affect the acquisition of L3 English, or is only one of the languages chosen as the source of crosslinguistic influence?

**RQ2:** Is CLI always facilitative, or can it also be non-facilitative?

**RQ3:** To which extent will CLI from Russian (the non-dominant language) be related to language use measure in that language?

In line with the Linguistic Proximity Model, this work views L3 acquisition as a step-by-step acquisition process, in which both previously acquired languages are co-activated based on structural similarity with the L3. Following the assumptions of the LPM model, we make the following predictions:

**Prediction 1 & 2.** Both previously acquired languages are co-activated in L3 acquisition process and since the linguistic properties in these languages do not always match the target language, both facilitative and non-facilitative influence is expected to occur. If co-activation of both languages occurs in L3 acquisition based on structural similarities between the languages, the performance of the L3 group will be different across the conditions tested. In other words, it is not expected that the bilinguals will pattern exclusively with one the L2 groups across all conditions, as it would suggest that they are influenced by only one of the languages.

We predict that the monolingual controls will outperform each other on the conditions where their L1 is similar to English. The bilinguals are expected to perform in-between the two L2 groups because of simultaneous facilitative and non-facilitative influence from Russian and Norwegian. Alternatively, the bilingual group may perform the same as the L2 group with

which they share relevant linguistic properties. In other words, it is possible that the bilinguals will pattern with the higher accuracy group, once they have learnt to inhibit the non-facilitative language, and with the lower accuracy group in case they have not yet discovered the structural similarities between the linguistic properties (Jensen et al., 2021).

**Prediction 3.** The amount of CLI from Russian, bilinguals' non-dominant language, will be related to the language use score in that language.

In conditions, where Russian offers facilitation, the bilinguals with a higher language use score in Russian will be more accurate than the bilinguals with a lower HL use score. Alternatively, when testing for properties in which Russian is the non-facilitative language, the bilinguals with a higher HL use score in Russian will be less accurate than their bilingual peers with a lower score.

In the next section, we will learn more about the methodology employed in this study and review the tools this research uses to test the above-mentioned predictions.

## **4.2 Method**

To investigate the research questions posed in this study, we use a subtractive language group design (Westergaard et al, 2023) in which the performance of the bilingual group is compared to the performance of two monolingual control groups. This approach allows researchers to isolate the role of each previously acquired language and address the issue of the source of CLI. The current study employs the methodology commonly used in the studies investigating the phenomenon of cross-linguistic influence in L<sub>n</sub> acquisition. The main data is collected by means of the acceptability judgement test that is administrated to all three groups. The level of proficiency in English is operationalised using the Oxford Proficiency test, and the HL use score is calculated based on the responses provided for background questionnaire administrated to the bilingual group. In the following sections, we will discuss the design of the tasks in more detail.

### **4.2.1 Acceptability Judgement Task**

The main data collection tool used in this study to measure CLI in L3 acquisition of English is an offline acceptability judgement task (AJT) which is a common quantitative method in SLA and L3A research which is used to investigate speaker's intuition about the well-formedness/grammaticality of the sentences. The main reason why we decided to use the

acceptability judgement task in this study is because when used in combination with statistical analysis, it allows the researchers to determine common trends as well as to investigate the correlation between different variables.

In the AJT, the participants were asked to review a list of grammatical and ungrammatical English sentences and evaluate whether they sound acceptable or not acceptable by assigning to them values OK and NO, respectively. The full AJT contains 60 pairs of sentences. Each pair consists of one grammatical and one ungrammatical sentence. I divided the sentences into two lists so that the participants would not see both members of a sentence pair in the same test, as illustrated in the table below.

| <b>List 1</b>                                                    | <b>List 2</b>                                                |
|------------------------------------------------------------------|--------------------------------------------------------------|
| 1. <i>[Mary took a test yesterday]</i> . The test was difficult. | 1. <i>[Mary took a test yesterday]</i> . Test was difficult. |
| 2. The boy like to go swimming in the ocean.                     | 2. The boy likes to go swimming in the ocean.                |
| 3. I have strange feeling.                                       | 3. I have a strange feeling.                                 |
| 4. The house with yellow and white doors looks nice.             | 4. The house with yellow and white doors look nice.          |

Both versions of AJT contain 60 sentences that can be divided broadly into three groups - Condition 1 testing participants knowledge of articles in English, Condition 2 testing subject-verb agreement in English, and Fillers. These experimental conditions have been chosen, as they represent structural differences and similarities between the languages under discussion. As it was mentioned earlier in Chapter 3, the acquisition of articles in English is typically challenging for speakers of article-less Russian (Ionin et al., 2003; Ionin et al., 2006; Cho & Slabakova, 2014); while subject-verb agreement has been found to pose a great difficulty for L1 speakers of Norwegian (Jensen et al. 2020), which could be attributed to the fact that Norwegian does not have overt subject-verb agreement.

Condition 1 and Conditions 2 were subdivided into 4 sub-condition each discovering a particular area of mismatch or similarity between the tested languages. For every sub-condition, there were 6 grammatical sentences and 6 ungrammatical sentences.

Below, I will provide a summary of the sub-conditions tested and outline the predictions made for each of them.

### **I. Conditions testing the acquisition of articles in English**

The first group of conditions focused on how L2 and L3 learners of English acquire article system in English. As it was mentioned earlier in Chapter 3, both English and Norwegian have a fully grammaticalized article system that allows to mark (in)definiteness overtly on noun phrases, while Russian adopts other methods to express this category. Even though Russian does not have a grammaticalized article system, it does behave similarly to English in generic contexts in which English does not allow definite plural nominals to have generic interpretation, while Norwegian does. Moreover, when it comes to expressing genericity with abstract nouns, both Russian and English use of bare nouns in this context, while Norwegian requires using definite NPs. Based on the areas of mismatch summarised above, I have outlined the following sub-conditions:

#### **Sub-condition 1: Obligatory use of the definite article**

Both English and Norwegian mark definiteness overtly on the NP either with the help of the definite article or definite suffix and definite article (in Norwegian). Russian is different from both languages since it does not have any overt marker of definiteness. As it follows from (24), the ungrammatical test items contained nominals in bare form, as this is the form that patterns with the expected performance of L1 Russian group, and the scope of the study does not allow us to test for more contexts.

(24) Sample test sentence for condition ‘Obligatory use of the definite article’

- a. The author of this book is famous.
- b. \* Author of this book is famous.

To determine whether the nominal has the definite reference, some items provided contextual sentences in brackets, as in (25). The learners were explained that these sentences are given to set the context to understand the situation better and were instructed not to judge the sentences in brackets separately.

(25) Sample test sentence for condition ‘Obligatory use of the definite article’

- a. [Jack met a pretty girl yesterday]. The girl studies linguistics.
- b. [Jack met a pretty girl yesterday]. \*Girl studies linguistics.

### **Sub-condition 2: Obligatory use of the indefinite article**

Both English and Norwegian have the indefinite article, while Russian doesn't distinguish between definite and indefinite nominal form. The example of the AJT test item is illustrated in (26):

(26) Sample test sentence for condition ‘Obligatory use of the indefinite article’

- a. I have a strange feeling.
- b. \*I have strange feeling

We expected to see approximately the same performance for sub-conditions 1 and 2 since they both focus on how (in)definiteness is expressed in the languages under discussion. Therefore, we make the following prediction for both sub-conditions:

**Prediction:** L1 Norwegian learners will outperform L1 Russian learners both in grammatical and ungrammatical test items. L1 Norwegian group will accept grammatical sentences, and reject ungrammatical, while L1 Russian group may fluctuate and either accept or reject both grammatical and ungrammatical items. As for the bilingual group, there are several possible outcomes:

1. Bilinguals will outperform L1 Rus group due to facilitative influence from Norwegian, however, it can perform with less accuracy than L1 Nor due to non-facilitation from Russian. Non-facilitative CLI from Russian may be proportionate to the bilinguals’ use score in this language.
2. The bilingual group can also perform at ceiling when learn to inhibit the non-facilitation from Russian, especially at higher proficiency levels in English.

### **Sub-condition 3: Genericity with plural NPs**

In English, definite plural NPs cannot have generic reading, and therefore only indefinite NPs are used to serve this purpose, while Norwegian allows both indefinite and definite plural form to appear in generic contexts. Although bare plural is a more widespread form for generic context in Norwegian, the use of the definite plural is also possible. Russian nominals

do not distinguish between indefinite and definite form, making Russian similar to English, whereas Norwegian only partially overlaps with English. The example testing this condition is provided in (27)

(27) Sample test sentence for condition ‘Genericity with plural NPs’

- a. Cats are independent animals
- b. \*The cats are independent animals

**Prediction:** L1 Russian group will either outperform, or behave similarly to L1 Norwegian and bilinguals. L1 Norwegian learners will accept sentences with both definite and indefinite plurals sentences due both forms being used in generic contexts. Russian learners will accept grammatical sentences; however, it is unclear how they will behave in regard to ungrammatical sentences as they may either accept or reject definite plural form. Overall, it is likely that all three groups will perform at the same accuracy rate in regard to this condition.

#### **Sub-condition 4: Abstract genericity**

There is a group of abstract nouns in English that appears in bare form, without the definite article, while its’ cognates in Norwegian require the use of the definite article. Therefore, Norwegian differs from English, while Russian is similar.

(28) Sample test sentence for condition ‘Genericity with plural NPs’

- a. Time will show
- b. \*The time will show

**Prediction:** The L1 Russian group will outperform L1 Norwegian groups in their use of bare nouns in generic contexts due to the latter having strong non-facilitative influence. The performance of the bilingual group may have several possible outcomes:

1. The bilinguals will outperform L1 Nor group due to facilitative influence from Russian, however, they are expected to perform in-between the groups due to non-facilitative Norwegian. There is a probability that positive influence from Russian may occur in relation to the bilinguals’ dominance in this language.
2. The bilingual group can also perform at ceiling when learn to inhibit the non-facilitation from Norwegian, especially at higher proficiency levels in English.

3. All groups may perform with low accuracy due to abstract nouns having low frequency in the input.

The last prediction is based on the findings from Jensen et al. (2022) who reported a low accuracy rate in Genericity condition for bilinguals and monolingual controls and attributed it to the fact that typically the participants from this age group have limited exposure to abstract and mass nouns in English.

## **II. Conditions testing the acquisition of subject-verb agreement in English**

Despite being typologically distant languages, Russian and English have some structural similarities in regard to subject-verb agreement as both languages possess a category of grammatical concord which is marked with overt verbal morphology. In contrast to English and Russian, Norwegian does not mark agreement for person and number on the verbs in present tense.

In this study, I am testing subject-verb agreement in regard to different subject types (singular and plural) and the distance between subject and verb (local and long-distance). Therefore, there are once again 4 sub-conditions testing this linguistic property. Below, I provide the examples of the sample sentences used to test each sub-conditions and make some predictions in regard to what performance we expect from the participants from each language group.

### **Sub-condition 5: Subject-verb agreement with singular subjects, local agreement**

The first distinction tested is local subject verb agreement with singular vs plural subjects. In Chapter 3, we have discussed that both Russian and English mark agreement on the verb using verbal morphology, which gives Russian speakers some advantage in the acquisition of this linguistic property.

To test whether previous knowledge of Russian gives facilitation to the learners acquiring agreement category in English, I have decided to use the test items that have been previously administered to the group of L1 Norwegian learners by Jensen (2016). In her master's thesis, Jensen tested the bottleneck hypothesis and investigate whether functional morphology (subject-verb agreement) is more difficult than narrow syntax (verb movement). I have borrowed only items testing subject-verb agreement condition. All sentences used in the AJT contained only finite verbs in the present tense, discarding negative and interrogative sentences since the latter are structurally different from SVA in declaratives as it requires the



use of auxiliary *do*, which is inflected in a 3rd person singular context and/or negative particle *not*. Below are examples of sentence pairs focusing on local agreement with singular subjects.

(29) Sample test sentence for condition ‘SVA with singular subjects, local agreement’

- a. The girl drinks a lot of water every day
- b. \*The girl drink a lot of water every day

### **Sub-condition 6: Subject-verb agreement with plural subjects, local agreement**

Subject-verb agreements with plural subjects is typically assumed to be less challenging than subject-verb agreements with singular subject, which is also supported by the research findings reporting that errors of omissions are more frequent than errors of hypercorrection when it comes to inflectional morphology. In English, the verb does not take any morphological marker when agreeing with plural subjects, as illustrated in (30), which makes it similar to Norwegian, whereas morphologically rich Russian marks the category of number on the verb when in plural form.

(30) Sample test sentence for condition ‘SVA with plural subjects, local agreement’

- a. The kids like to play in the park every weekend
- b. \*The kids likes to play in the park every weekend

**Prediction:** Overall, L1 Russian group is expected to outperform L1 Norwegian groups due to the presence of agreement category in their native language. We expect that the SV agreement with singular subjects will be more difficult for the Norwegian learners than SV with plural subjects. The bilingual learners are expected to perform in-between due to co-activation of the previously acquired languages; while CLI from Russian may be proportionate to the bilinguals’ dominance in this language.

### **Sub-condition 7: Subject-verb agreement with singular subjects, long distance agreement**

The items used to test learners’ judgement of long-distance agreement comprised the sentences where a prepositional phrase separated subject from the verb. The noun in the prepositional phrase would appear in the opposite from the subject number, as show in (31).

Otherwise, it would not be possible to identify whether the judgements are made on the basis of intervening noun or the subject noun.

(31) Sample test sentence for condition ‘SVA with singular subjects, long distance agreement’

- a. The boy with broken arms tries to read a book
- b. \*The boy with broken arms try to read a book

### **Sub-condition 8: Subject-verb agreement with plural subjects, long distance agreement**

The final sub-condition employed in the AJT, tested long-distance agreement with plural subject, as shown in (32).

(32) Sample test sentence for condition ‘SVA with plural subjects, long distance agreement’

- a. The boys in the black car look very scary
- b. \*The boys in the black car looks very scary

**Prediction:** L1 Russian speakers may perform better than L1 Norwegian speakers on conditions testing long-distance agreement as Russian has a case system that marks syntactic roles of nouns, including subject and object, which may make it easier for the L1 speakers to detect long-distance agreement errors. Overall, we expect that long-distance agreement will be more challenging than the local agreement for all three groups tested due to an increased cognitive load associate with the processing of such sentences.

### **III. Fillers**

In this work, fillers not only function as distractors but also serve as an additional tool of detecting cross-linguistic influence. Since the main conditions represent two linguistic domains: syntax-semantics and morpho-syntax, I wanted explore CLI in one more area of grammar - syntactic domain. I decided to focus on word order and chose two sub-conditions: topicalized sentences and adverb–verb word order.

### **Sub-condition 9. Topicalized sentences**

A topicalized sentence, also known as non-subject initial declarative, is a sentence in which the topic of the sentence is placed at the beginning, followed by the rest of the sentence. In

other words, the information that needs to be emphasised by the speaker is moved to the front of the sentence. In English, a topic will be followed by the subject because English deploys SVO word order in declarative sentences, as illustrated in (33).

(33) 'Once a month they go to the cinema'

Norwegian, however, is a verb second (V2) language, meaning that the finite verb always comes in the second position in the sentence and is preceded by only one constituent, as shown in (34).

(34) En gang i måneden går de på kino  
*One time in month.DEF go they on cinema*  
'Once a month they go to the cinema'

Russian, as many other synthetic languages, has no strict word order. The sentence structure in Russian is rather flexible and the constituent order often reflects the pragmatics of the utterance. Nevertheless, SVO is a pragmatically neutral word order in Russian, as shown in the example below.

(35) Raz v mesjac oni hodjat v kino  
*Once in month they go in cinema*  
'Once a month they go to the cinema'

V2 word order, as in (36), is possible in Russian, however, it is definitely not a neutral constituent order and may sound odd to a native-speaker, although it would not be treated as categorically unacceptable.

(36) Raz v mesjac hodjat oni v kino  
??? *Once in month go they in cinema*  
'Once a month they go to the cinema'

Nevertheless, even though Russian has a flexible word order, it does not require the verb to appear in the second position, which makes it structurally more similar to English in regard to Topic condition. The sample test item from the AJT list testing this sub-condition is given in (37).

(37) Sample test sentence for condition ‘Topicalized sentences’

- a. Every Friday we eat pizza for inner
- b. \*Every Friday eat we pizza for dinner.

### **Sub-condition 10. Adverb -Verb word order**

The final sub-condition tested in the AJT is adverb-verb word order. To test this sub-condition, I have designed 6 pairs of sentences in present tense in which the habitual adverbs appear between the subject and the finite verb. In this context, Norwegian is once again different from English, as the former requires a verb to appear in the second position, as shown in (38).

(38) Vi spiser vanligvis grøt til frokost  
*We eat usually porridge for breakfast*  
‘We usually eat porridge for breakfast’

As it was mentioned earlier, Russian is SVO language but allows some flexibility in the word order, which makes both (39) and (40) plausible sentences in Russian, although the former example illustrates a more neutral order of constituents.

(39) My obychno jedim kashu na zavtrak  
*We usually eat porridge for breakfast*  
‘We usually eat porridge for breakfast’

(40) My jedim obychno kashu na zavtrak  
*We eat usually porridge for breakfast*  
‘We usually eat porridge for breakfast’

The example of the ungrammatical and grammatical Adv-V sentence used in the AJT is given in (41).

(41) Sample test sentence for condition ‘Adv-V word order’

- a. Yesterday I talked with my best friend
- b. \*Yesterday talked I with my best friend

To sum up, English is more similar to Russian in the syntactic sub-conditions as both languages show preference towards SVO word order, whereas V2 Norwegian is different.

**Prediction:** The L1 Russian group will outperform their Norwegian speaking peers in Topic and Adv-V conditions due to the shared similarities with target English. The L1 Russian learners may accept both grammatical and ungrammatical word order in English due to the lack of strict rules in their L1, whereas L1 Norwegian learners may perceive the correct English word order as ungrammatical. The bilingual group will score in-between due to co-activation of the facilitative and non-facilitative languages.

However, it is worth mentioning that the groups may perform at ceiling since the syntactic properties are typically acquired earlier than morphological or semantic. Extending the discussion on the developmental slopes further, we assume that syntactic filler sub-conditions will turn out to be easier than the other sub-conditions as there is a possibility that the learners at high proficiency levels would have already acquired these properties by the moment of the experiment.

#### 4.2.2 English Proficiency Test

The purpose of the proficiency test was to determine the proficiency level of the students. I used a subset of Oxford Proficiency test which was employed in the experiment as it has been previously used in other studies (Jensen, 2017; Slabakova et al., 2015) and proved to be an efficient measure of learners' linguistic competence. This is a multiple-choice test which consists of 40 items to which only one correct answer can be given.

The test consists of two parts: the first part includes 20 test items, that are not connected to each other, where the participants need to choose the best answer among the three options provided to complete a sentence, whereas the last 20 sentences, on the contrary, form a continuous story. Here are some examples of multiple-choice questions included in the test:

(42) Oxford Proficiency test: multiple choice test items

i. In some places \_\_\_\_\_ almost every day.

- a) it rains
- b) there rains
- c) it raining

ii. In deserts there isn't \_\_\_\_\_ grass.

- a) the                      b) some                      c) any

(43) Oxford Proficiency test: continuous narrative test items

i. The history of *aeroplane / the aeroplane / an aeroplane* is

ii. *quite a / a quite / quite* short one.

iii. For many centuries men *are trying / try / had tried* to fly,

iv. but with *little / few / a little* success.

The complete version of the Oxford proficiency test administrated in this study is provided in Appendix B. The purpose of the proficiency test is to assess students' level in English language so that different groups could be comparable in terms of proficiency. Comparing only aged-matched learners is not correct since Norwegian learners are typically more proficient in English compared to their Russian peers.

Based on the total score, the participants were divided into five proficiency groups, ranging from beginner to advanced. The proficiency level was calculated the following way:

Table 5. Scoring system for Proficiency test

| Total score  | Proficiency level  |
|--------------|--------------------|
| < 10 points  | beginner           |
| 11–17 points | pre-intermediate   |
| 18–25 points | intermediate       |
| 26–32 points | upper-intermediate |
| 33–40 points | advanced           |

### 4.2.3 Language Background Questionnaire.

The methodology of this study implements two different background questionnaires depending on whether the participants come from the bilingual or monolingual control group.

The background questionnaire conducted with the monolingual groups was designed to collect general information about the participants and identify languages spoken by the monolingual controls. Since the current study focuses on the phenomenon of cross-linguistic influence, it is important to identify if the monolingual controls speak other native languages that could potentially affect the reliability of the research findings. The full version of the background questionnaire distributed to L1 Norwegian and L1 Russian control groups can be found in Appendix C.

The background questionnaire for the bilingual group is more detailed as its purpose is to collect enough insights about the bilinguals' linguistic experience. Bilingual children speaking the same languages do not represent a homogeneous group: the amount of exposure to each language may vary significantly among the speakers which in turn leads to considerable variation in language proficiency (De Cat et al., 2022).

Since this study is interested in assessing the potential role of language dominance and heritage language use in CLI into the L3, I needed to find a way to operationalize the abovementioned constructs among the bilingual children participating in the experiment. Documenting bilingual experience in children is far from being straightforward. Bilingualism is a multi-dimensional construct which is hard to measure, which is aggravated by the fact that there is not much consensus among researchers in regard to which set of constructs and tools should be used to capture bilingual experience.

Various questionnaires have been developed in attempt to quantify bilingual experience including questionnaires such as the UBILEC, for use with early bilinguals (Unsworth, 2013), the Leap-Q (Marian et al., 2007), the Bilingual Language Profile (Gertken et al., 2014), and the LSBQ (Anderson et al., 2018). When it comes to testing children, the questionnaires tend to target parents/caregivers, teachers, and to a lesser extent the children themselves. One of the recent advances in this area is Q-BEx project (De Cat et al., 2022), a customisable online tool designed to develop profiles of multilingual children. The Q-Bex questionnaire was designed based on a thorough review of existing tool used to document bilingual experience and informed by a consensus among researchers, practitioners, speech & language therapists on what constructs to use to quantify bilingual experience. Initially, I was planning to use Q-Bex tool in my study as it allows to customise the questionnaire according to the needs of the project and provides an associated calculator of language exposure and use which makes it convenient to analyse the data. I created the project in Q-Bex and designed the questionnaire

choosing the questions from modules ‘Language exposure and use’, ‘Language proficiency’, ‘Richness of linguistic experience’ and ‘Attitudes and satisfaction with child's language’ to better account for the full picture of bilinguals’ experience with heritage Russian.

Eventually, I had to abandon the idea of using Q-Bex in my study since the Russian weekend school where the bilingual participants were recruited did not have PC equipment and chose to do the test on paper. I decided not to administer the background questionnaire online as I had concerns that some participants would not fill out the questionnaires if they had been asked to do it independently at home.

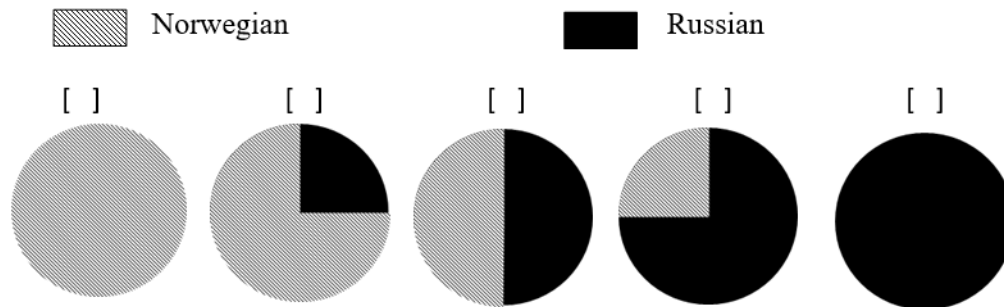
After reviewing the variety of questionnaires targeting child bilinguals that could be administrated in a written mode, I came to conclusion that none of them was fully capable of operationalising the variables needed and I decided to develop my own questionnaire. To achieve this goal, I have decided to take the Q-Bex project that I have customised online and turn it into a paper-based questionnaire, so I had to change the format of the questions and answers to make it more convenient to for the participants to complete on paper. The questionnaire was administrated in Russian language, however, the full version of the Language Background Questionnaire administrated to the bilingual group is available in the Appendix D in English version.

I consciously omitted certain background questions that make up an obligatory module in Q-Bex online questionnaire as they asked for sensitive personal information that had no relevance for my study. As mentioned earlier, the questions aimed at collecting data to account for several constraints (‘Language exposure and use’, ‘Richness of linguistic experience’, and ‘Language proficiency’) that are commonly used to operationalise bilinguals’ dominance in one of the languages. The questionnaire started with asking for the participants background information such as grade, age and languages spoken. Then, the participants were asked to provide information about the patterns of language use at home with their family members (see Figure 1 below). Specifically, we wanted not only to know what languages are spoken by their parents, but also how the bilingual children and their parents use both languages.

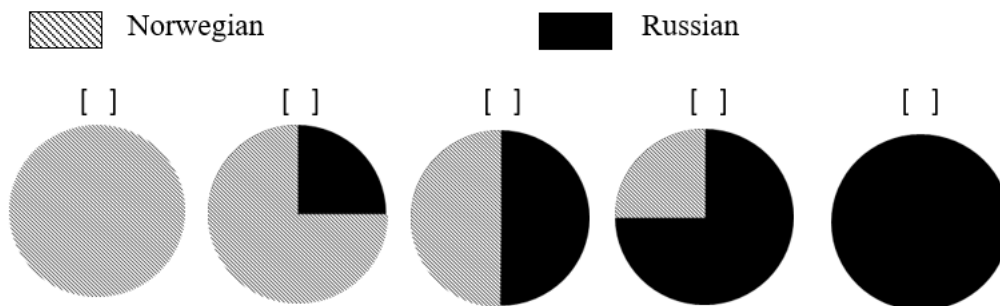


Figure 1: Language Background Questionnaire: language use at home

At home, how often does [Caregiver 1: \_\_\_\_\_] use each language when speaking to you? Think about a typical week in the current year.



At home, how often do you use each language when speaking to [Caregiver 1: \_\_\_\_\_]?



The richness of linguistic environment was measured by asking the respondents to provide insights into what languages they use with peers at school and in the local environment, the number of people Russian is spoken to, availability of HL instruction, and the overall engagement the child has with the minority language: HL activities and events, trips to the Russian-speaking countries, etc. The choice of the test items is informed by the research on HL maintenance which reports that factors such as language policy at home, exposure to the language both in and outside the home, literacy and availability of HL instruction, and the overall engagement the child has with the minority language appear to determine the ‘success’ of heritage language acquisition. (Place & Hoff, 2011; Mashburn et al., 2009; Rodina et al., 2020).

Additionally, the bilingual participants were asked to assess their receptive (comprehension, reading) and productive (speaking, writing) skills in Russian and Norwegian on a scale from ‘hardly at all’ till ‘very well’, as shown in Figure 2.

Figure 2: Language background questionnaire: Self-assessed proficiency.

How well can you do the things bellow for your age? Tick  the appropriate box.

|                   | <b>Norwegian</b>                       |                                        | <b>Russian</b>                         |                                        |
|-------------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|
| <b>Speak</b>      | <input type="checkbox"/> hardly at all | <input type="checkbox"/> not very well | <input type="checkbox"/> hardly at all | <input type="checkbox"/> not very well |
|                   | <input type="checkbox"/> pretty well   | <input type="checkbox"/> very well     | <input type="checkbox"/> pretty well   | <input type="checkbox"/> very well     |
| <b>Understand</b> | <input type="checkbox"/> hardly at all | <input type="checkbox"/> not very well | <input type="checkbox"/> hardly at all | <input type="checkbox"/> not very well |
|                   | <input type="checkbox"/> pretty well   | <input type="checkbox"/> very well     | <input type="checkbox"/> pretty well   | <input type="checkbox"/> very well     |
| <b>Read</b>       | <input type="checkbox"/> hardly at all | <input type="checkbox"/> not very well | <input type="checkbox"/> hardly at all | <input type="checkbox"/> not very well |
|                   | <input type="checkbox"/> pretty well   | <input type="checkbox"/> very well     | <input type="checkbox"/> pretty well   | <input type="checkbox"/> very well     |
| <b>Write</b>      | <input type="checkbox"/> hardly at all | <input type="checkbox"/> not very well | <input type="checkbox"/> hardly at all | <input type="checkbox"/> not very well |
|                   | <input type="checkbox"/> pretty well   | <input type="checkbox"/> very well     | <input type="checkbox"/> pretty well   | <input type="checkbox"/> very well     |

Based on the information related to Russian, I computed a score that reflects the quality and quantity of the bilinguals' contact with Russian language. The data used to calculate this score is based on the three primary categories: Language at home, Richness of linguistic environment and Self-assessed proficiency. In table, I provide a more detailed overview of 14 aspects of language use that comprise HL score and describe the scoring system used to attribute weighted scores to each variable. This score follows a similar scoring system as the one developed by Lloyd-Smith et al. (2017), however, certain changes have been made to account better for the situation of child bilingualism since the researchers focus on adult heritage speakers in their studies.

Table 6. Information used to calculate HL Use Score (Max 19 points)

| <b>Category</b> | <b>Type of question (max score)</b>  |
|-----------------|--------------------------------------|
| HL use at home  | Age of onset in Norwegian (2 points) |
|                 | Mother's HL use (1 point)            |
|                 | L with Mother (1 point)              |
|                 | Father's HL use (1 point)            |
|                 | HL with Father (1 point)             |
|                 | HL with grandparents (1 point)       |
|                 | HL with siblings (1 point)           |

|                                   |                                                                                               |
|-----------------------------------|-----------------------------------------------------------------------------------------------|
| Richness of linguistic experience | HL instruction (1 point)                                                                      |
|                                   | Types of contact with HL (2 points)                                                           |
|                                   | HL with peers (1 point)                                                                       |
|                                   | Activities in HL (1 point)                                                                    |
|                                   | Size of heritage community (1.5 point)                                                        |
|                                   | Visits to heritage country (1.5 point)                                                        |
| Self-rated proficiency            | Self-assessed proficiency in Russian for listening, reading, writing, and speaking (3 points) |

---

To create the heritage language use score (outlined in Table 6), values were assigned to the following variables:

- 1) Age of onset in Russian: simultaneous and early sequential (< 2 years old) bilingualism = 0 points, late successive bilingualism = 2 points (based on the assumption that late AoO in Norwegian results in more exposure to the HL);
- 2) HL use at home (for each measure): 1 point = Russian (Rus); 0.75 points = 75 % Rus /25 % Nor; 0.5 points = Rus/Nor; 0.25 points = 25 % Rus /75 % Nor; 0 points = Norwegian (Nor);
- 3) HL instruction: 1 point=attending courses/Sunday school with Russian as a medium of instruction; 0 point = no access to HL instruction;
- 4) Types of contact with HL: 2 points = listening/speaking/reading/writing; 1.5 points = one of four contact types missing; 1 point = two of four contact types missing;
- 5) HL with peers: 1 point = using Russian to communicate with friends; 0 points = using only Norwegian to communicate with friends;
- 6) Activities in HL = 1 point if indicated participation in activities/hobbies in HL;
- 7) Size of heritage community: 1.5 points =10+ people; 1 point = 6–10 people; 0.5 points = 1–5 people; 0 points = no people;
- 8) Visits to heritage countries: 1.5 points = regular (once per year) lengthy trips to Russian speaking countries; 1 point = regular (once per year) short trips to Russian speaking countries; 0.5 = non-regular (every 2-3 years) visits; 0 = no visits;
- 9) mean self-assessed proficiency in Russian for reading, writing, listening, and speaking: 0 = hardly at all; 0.5 = hardly at all/ not very well; 1 point = not very well; 1.5 = not very well/ pretty well; 2 points = pretty well; 2.5 points = very well/ pretty well; 3 points = very well.

This resulted in each bilingual candidate receiving a HL use score ranging from 1 to max 19 points which could be used as a continuous predictor in a statistical analysis.

### 4.3 Participants and procedure

The current study uses a subtractive experimental design in which the performance of Russian-Norwegian group is compared to two L2 monolingual control groups. Our two control groups are represented by students who grew up speaking either Russian or Norwegian as their L1 and started learning English as their first foreign language at school. Throughout the thesis, I refer to the participants from these groups as monolingual controls, although they are not monolingual *per se* since they speak English as their L2.

Therefore, the participants of the current study are represented by three different groups and data was collected with each group at different time periods in different countries. In this section, I will describe the process of data collection with each group and provide a general profile of the respondents.

The Russian–Norwegian bilinguals were recruited at the Russian weekend school in Oslo which all participants attended at that moment of the study. The data collection took place during school hours, and the procedure was hold and controlled by the author. The experiment was administrated in a written mode and comprised three parts: proficiency test, grammaticality judgement test and a language background questionnaire. In addition to the main experimental task, all students received an information letter that contained information about the research project (see Appendix E) and a consent form which the participants' parents were required to sign to agree with their child's participation in this experiment.

The original dataset for bilingual group included 22 child HSs of Russian who attended primary and lower secondary schools in Oslo at the moment of the experiment. The HS group (mean age = 12.1) is represented by simultaneous bilinguals ( $n= 4$ ) who acquired both languages from birth, and early ( $n=11$ ) and late successive bilinguals ( $n=7$ ) who started acquiring Norwegian aged 1–2 and 4–8 years old, respectively. English was the chronologically third and first foreign language that they study at the public school in Norway. It is worth mentioning that 3 out of 21 students reported having other home languages: two girls spoke Russian and Italian at home, and one girl had French and Russian as her home languages. I had to exclude the results of these candidates from the analysis as it

could have affected the reliability of the data, meaning that the total bilingual dataset includes 19 participants.

The data collection with the Russian monolingual control group ( $n=106$ ) took place at the secondary school with a special focus on learning foreign languages in Arkhangelsk, Russia. The experiment took place during school hours, and the procedure was held and controlled by the school teachers. The Russian dataset consists of 6<sup>th</sup> ( $n=24$ ), 7<sup>th</sup> ( $n=44$ ), and 8<sup>th</sup> grade ( $n=38$ ) pupils who speak Russian as their L1 and learn L2 English in instructed foreign language environment. In Russia, children start school at the age of 7, meaning that they are typically 12 years old in grade 6, and 13 years old in grade 7, and 14 years old when they start 8<sup>th</sup> grade. We deliberately decided to include the participants from the grade higher than the Norwegian group. We were expecting that given the Norwegian reputation for English proficiency, the level of proficiency among Russian students, even those attending a special school focusing on in-depth learning of foreign languages, will still be lower than that of their Norwegian peers.

The data for the Norwegian dataset ( $n=20$ ) was collected during school hours by the other student during her internship at one of the secondary schools in Tromsø. The dataset for the Norwegian control group is significantly smaller than for the Russian group which is explained by the challenges that I faced trying to recruit the Norwegian participants since the schools that I contacted did not express their willingness to participate in the research project. Initially, we were planning to test the students from grade 6 and 7, however, we only managed to recruit the students from the 7<sup>th</sup> grade. All students included in the dataset reported to speak Norwegian as their L1 and English as their L2 which they started acquiring in classroom settings.

The experiment with monolingual controls was administrated in a written mode and consisted of several parts: a consent form, a proficiency test, an Acceptability Judgement test and a short questionnaire aimed at determining students' language background. There were two versions of the test due to different AJT lists. The tests were equally distributed among the groups so that there would be approximately the same number of responses for each list. This, however, does not apply to the Norwegian control group that completed only one version of the test, a limitation of the current study that will be addressed later in the Results section.

The participants received both written and oral instructions about the format of the test to resolve any ambiguity. As for the Acceptability Judgement test, the format of which could be unfamiliar, the participants were instructed to use their linguistic intuitions to judge the sentences and were provided with a sample sentence in order to get accustomed to the procedure. In order to minimize the effect of test anxiety, the participants were informed that their result would not affect their grades and would be used for research purpose only. Overall, the participants did not exhibit any major difficulties in the course of data collection procedure. The time allocated for the completion of the whole test was 45 minutes, which proved to be sufficient as most of the participants spent approximately 30-40 minutes on the given task.

## 5 Results

The data collected with monolingual and bilingual groups was analysed in R. The participants responses for AJT and proficiency tests were recorded together with language background data and organized in an excel file which was converted into a csv file for further analysis. The file contains 8 761 lines. Figure 3 gives a general idea of the file's organization and shows the first and last segment of the csv file.

Figure 3. The organization of data in the csv file

|      | A         | B              | C      | D    | E                      | F              | G           | H        | I     | J      | K   | L           | M                 |
|------|-----------|----------------|--------|------|------------------------|----------------|-------------|----------|-------|--------|-----|-------------|-------------------|
| 1    | condition | sub-condition  | List   | Item | Sentence               | Grammaticality | Participant | Response | Grade | Group  | Age | Proficiency | Proficiency_level |
| 2    | Articles  | Obligatory_DEF | List_1 | 1    | [Mary took a test : OK |                | 6R1         | OK       | 6     | Rus    | 13  | 6           | Beginner          |
| 3    | Articles  | Obligatory_DEF | List_1 | 1    | [Mary took a test : OK |                | 6R2         | OK       | 6     | Rus    | 12  | 9           | Beginner          |
| 4    | Articles  | Obligatory_DEF | List_1 | 1    | [Mary took a test : OK |                | 6R3         | OK       | 6     | Rus    | 12  | 16          | Pre-inter         |
| 5    | Articles  | Obligatory_DEF | List_1 | 1    | [Mary took a test : OK |                | 6R4         | OK       | 6     | Rus    | 13  | 13          | Pre-inter         |
| 6    | Articles  | Obligatory_DEF | List_1 | 1    | [Mary took a test : OK |                | 6R5         | OK       | 6     | Rus    | 12  | 13          | Pre-inter         |
| 7    | Articles  | Obligatory_DEF | List_1 | 1    | [Mary took a test : OK |                | 6R6         | OK       | 6     | Rus    | 12  | 23          | Intermediate      |
| 8    | Articles  | Obligatory_DEF | List_1 | 1    | [Mary took a test : OK |                | 6R7         | NO       | 6     | Rus    | 12  | 20          | Intermediate      |
| 9    | Articles  | Obligatory_DEF | List_1 | 1    | [Mary took a test : OK |                | 6R8         | OK       | 6     | Rus    | 12  | 11          | Pre-inter         |
| 10   | Articles  | Obligatory_DEF | List_1 | 1    | [Mary took a test : OK |                | 6R9         | OK       | 6     | Rus    | 12  | 10          | Beginner          |
| 11   | Articles  | Obligatory_DEF | List_1 | 1    | [Mary took a test : OK |                | 6R10        | OK       | 6     | Rus    | 12  | 18          | Intermediate      |
| 8755 | Filler    | Topic          | List_2 | 15   | Yesterday talked INO   |                | NR14        | NO       | NA    | Biling | 15  | 27          | Upper-inter       |
| 8756 | Filler    | Topic          | List_2 | 15   | Yesterday talked INO   |                | NR15        | NO       | NA    | Biling | 12  | 24          | Intermediate      |
| 8757 | Filler    | Topic          | List_2 | 15   | Yesterday talked INO   |                | NR16        | OK       | NA    | Biling | 12  | 30          | Upper-inter       |
| 8758 | Filler    | Topic          | List_2 | 15   | Yesterday talked INO   |                | NR17        | NO       | NA    | Biling | 12  | 31          | Upper-inter       |
| 8759 | Filler    | Topic          | List_2 | 15   | Yesterday talked INO   |                | NR18        | NO       | NA    | Biling | 12  | 31          | Upper-inter       |
| 8760 | Filler    | Topic          | List_2 | 15   | Yesterday talked INO   |                | NR19        | NO       | NA    | Biling | 10  | 26          | Upper-inter       |
| 8761 | Filler    | Topic          | List_2 | 15   | Yesterday talked INO   |                | NR20        | NO       | NA    | Biling | 11  | 25          | Intermediate      |

The dataset comprises several variables. *Condition* is coded for the two conditions and the fillers, while *Sub-condition* present information about the specific linguistic property tested. *List* differentiates between responses provided in List 1 and List 2, while *Item* contains information about the order of the test item in the respective AJT list. *Sentence* shows the text of the sentence that is used as a test item, whereas *Grammaticality* reflects whether the

sentence is grammatically correct in English or not. *Participant* contains an anonymous ID, e.g., 6R1 corresponds to the respondent from the Russian dataset from Grade 6, while 7NOR1 stands for the Norwegian student from Grade 7, and so on. *Response* captures the answer provided by the participant based on whether they mark it as correct (OK) or wrong (NO). *Grade* provides information about the students' grade, while *Group* identifies whether the participant belongs to bilingual (Biling), Norwegian (Nor) or Russian (Rus) groups. *Proficiency* was recorded both as a numeric score and the level that was assigned to each student based on the proficiency test score.

Additionally, the spreadsheet contains language background data for the bilingual participants based on the responses provided for language background questionnaire. These answers were recorded in separate tabs and contributed to the overall HL use score that was used to measure HL influence on CLI in L3 acquisition.

In the following section, we will discuss the results from the Proficiency test and the AJT, followed by the results from regression analysis conducted to determine how effective the HL use score was in predicting the occurrence of cross-linguistic influence from Russian to English.

## 5.1 The Proficiency Test

The participants proficiency in English language was measured by means of a subset of a standardized Oxford Proficiency test, which consisted of 40 items. The maximum score for the test was 40 points. Table reflects the mean, min and max score, and standard deviation of participants' scores sorted by language group. As it follows, from the table the range of proficiency scores and mean proficiency are noticeably different across the groups.

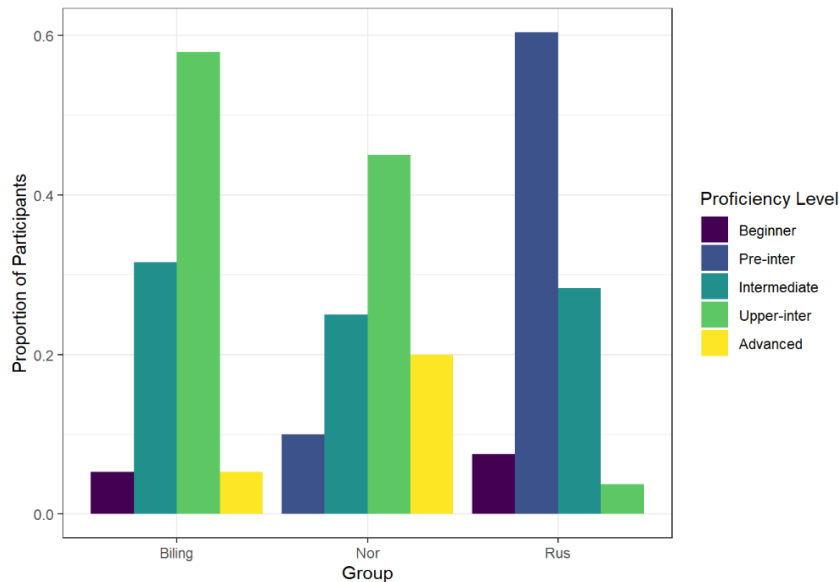
*Table 7. Language groups' proficiency scores.*

| Group  | N   | Mean     | SD       | Min | Max |
|--------|-----|----------|----------|-----|-----|
| Biling | 19  | 26.10526 | 5.546718 | 10  | 33  |
| Nor    | 20  | 27.85000 | 6.175290 | 17  | 37  |
| Rus    | 106 | 15.75472 | 4.077374 | 4   | 27  |

Based on the total score, the participants were divided into five proficiency groups, ranging from Beginner to Advanced. As it follows from Figure 4, the majority of the Russian controls are clustered at pre-intermediate level, while more than a half of the participants from the L1

Norwegian and Bilingual groups are at the higher end of the level bar – reaching Upper-Intermediate and Advanced proficiency in English.

Figure 4. Proportion of participants in each proficiency level



To sum up, the three groups are not comparable in terms of English proficiency. This is an unfortunate state of events that we were trying to prevent from happening as we deliberately chose to recruit the L1 Rus participants from a grade higher than the Norwegian controls in hopes that there will be more students with high proficiency levels in Grade 8. However, it did not help much and we have to face a significant difference between the L1 Rus group and the L1 Nor and the Bilingual groups. This difference will be taken into consideration in the following discussion of the AJT results.

## 5.2 The Acceptability Judgement Task

In the AJT, as described in section 4.2.1, the participants were asked to review a list of grammatical and ungrammatical sentences and evaluate whether they sound acceptable or not acceptable in English by assigning to them values OK and NO, respectively. The data has been uploaded and analysed in R. In the analysis, the responses were treated as a binary variable where the participants received an accuracy score of 1 when their response matched the value of the grammaticality associated with a particular sentence. For example, the sentence is grammatically correct and the participant marks it OK, then they receive 1 point; if the participant marks it as NO, then the associated accuracy score is 0.



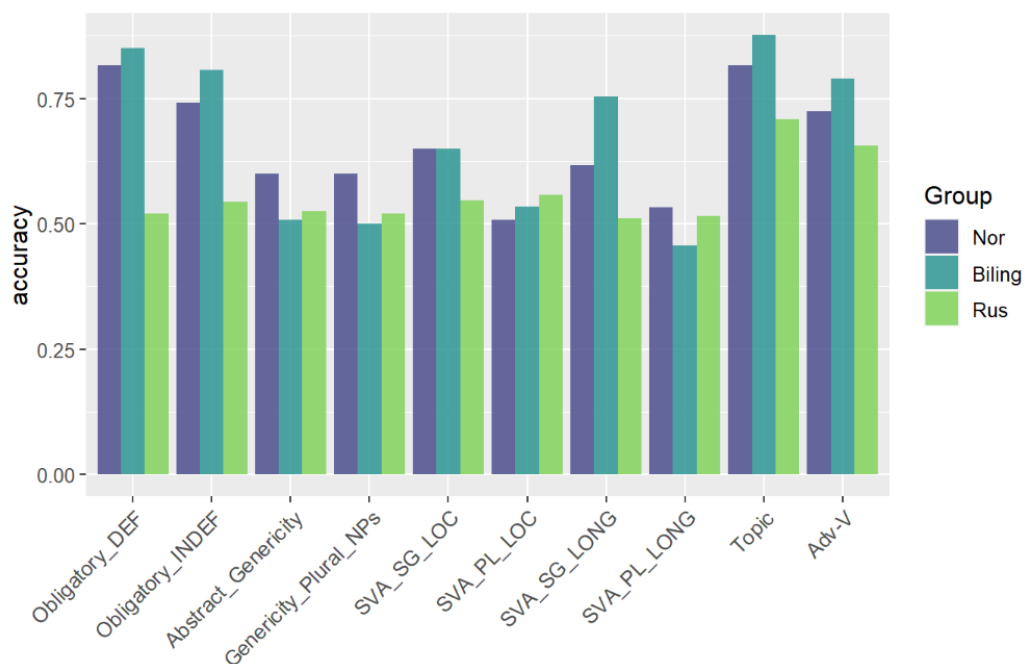
In the following sections, I discuss how three language groups performed in each condition in attempt to address the research questions of the study and check whether our initial predictions were met. Note, however, that the upcoming discussion will present the analysis of the raw dataset in which the participants are not matched by proficiency. The latter issue will be addressed by means of Bayesian mixed effects logistic regression analysis presented in section 5.2.2.

### **5.2.1 Descriptive analysis of the full dataset**

There are 10 sub-conditions in total that were addressed by means of the AJT (see more information in section 4.2.1). The acquisition of articles was tested in 4 sub-conditions: (1) obligatory use of the definite article (Obligatory\_DEF); (2) obligatory use of the indefinite article (Obligatory\_INDEF); (3) genericity with abstract nouns (Abstract\_Genericity); (4) genericity with plural NPs (Genericity\_Plural\_NPs). The subject-verb agreement was also tested in 4 sub-conditions: (5) local agreement with singular subjects (SVA\_SG\_LOC); (6) local agreement with plural subjects (SVA\_PL\_LOC); (7) long distance agreement with singular subjects (SVA\_SG\_LONG); (8) long distance agreement with plural subjects (SVA\_PL\_LONG). The fillers have also been included in the analysis and were subdivided into two conditions: (9) adverb-verb word order (Adv-V), and (10) Topicalised sentences (Topic). The brackets stand for how the conditions appear on the plot.

First, I have plotted a bar chart (Figure 5) illustrating mean accuracy score by condition and language group. The x-axis displays the sub-conditions tested, while the y-axis displays the mean accuracy with respect to each sub-condition. As indicated in the legend, Norwegian controls are represented in purple, bilinguals in turquoise and Russian controls are represented in green colour.

Figure 5. Accuracy by condition and group.



As it follows from the chart, the bilingual group outperforms the monolingual controls in 5 out of 10 sub-conditions tested, namely in the conditions testing the use of definite and indefinite articles, long-distance agreement with singular subjects, and in filler conditions testing Topic and Adv-V word order. The L1 Norwegian group, in turn, scores in between in the above-mentioned conditions, whereas it scores the highest in conditions testing Abstract Genericity and Genericity with Plurals, as well as long-distance agreement with plural subjects. The L1 Russian group typically score the lowest out of three groups. Nevertheless, they slightly outperform the rest in local agreement with plural subjects, while in the conditions testing long-distance agreement with plural subjects, Abstract Genericity and Genericity with plurals they score in between the L1 Norwegian and the bilingual groups.

Due to several reasons, it is difficult to draw any definitive conclusions from the general overview of the results. Firstly, the chart shows only the total accuracy score and does not indicate if there is any difference in how the groups judged grammatical vs ungrammatical sentences. Secondly, the groups differ significantly in their English language proficiency and it is logical that the participants from the L1 Russian group score the lowest out of the three groups since most likely they have not yet acquired the tested properties. In the following section, I will provide a more in-depth discussion of the results for each sub-condition focusing on the contrast between the judgements of grammatical and ungrammatical test items and paying attention to the predictions made for each sub-condition. The full table

summarizing mean accuracy scores by grammaticality and group for each sub-condition can be found in Appendix G.

### Obligatory use of the definite article

We predicted that L1 Norwegian learners would outperform L1 Russian learners both in grammatical and ungrammatical test items due to facilitative influence of Norwegian that also marks definiteness on the noun with the help of definite suffixes. The Russian controls were expected to fluctuate and accept both grammatical and ungrammatical items since there is no overt marker of definiteness in Russian. We predicted that the bilinguals will either perform in-between due to co-activation of both languages or perform at ceiling especially at higher levels of proficiency once they have learnt to inhibit the non-facilitation from Russian.

Figure 6. *Definite article, accuracy by grammaticality and group*

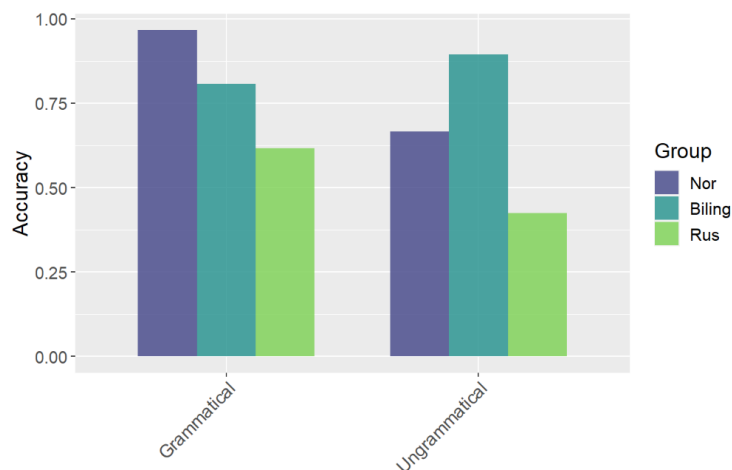


Figure 6 illustrates mean accuracy for grammatical and ungrammatical items. Overall, we can conclude that our predictions have mostly borne out. The bilinguals outperformed the monolingual controls in the total accuracy score (85%) and were more accurate in noticing ungrammatical sentences (89%) than grammatical sentences (81%). The L1 Norwegian group exhibited high mean accuracy (82%) but were less sensitive to ungrammatical items (68%) than to grammatical (96%). We may assume that both L1 Norwegian and the bilingual groups have acquired this linguistic property by the moment of the experiment and thus performed almost at ceiling.

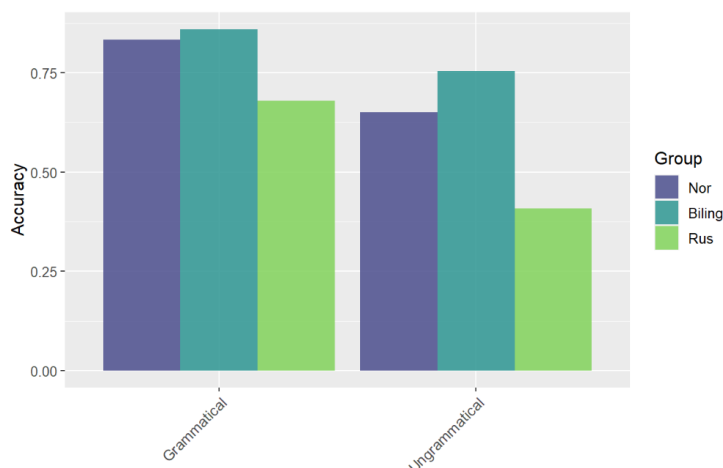
When it comes to L1 Russian group, we observe low accuracy rate (52%) overall, as well as with accepting (61%) and rejecting ungrammatical sentences (42%). This is not surprising

since articles have often been found to be problematic for L1 Russian learners of English, even at high proficiency levels.

### Obligatory use of the indefinite article

The predictions made for the condition testing the use of indefinite article are similar to those made for definite article conditions since once again Norwegian behaves similarly to English as both languages make an indefinite reference using the indefinite article, while Russian uses bare nominals in both definite and indefinite contexts. We predicted that L1 Norwegian learners would outperform L1 Russian learners both in grammatical and ungrammatical test items due to facilitative influence of Norwegian, while L1 Russian group would be at a disadvantage. The results of the AJT analysis are depicted in Figure 7.

*Figure 7. Indefinite article, accuracy by grammaticality and group*

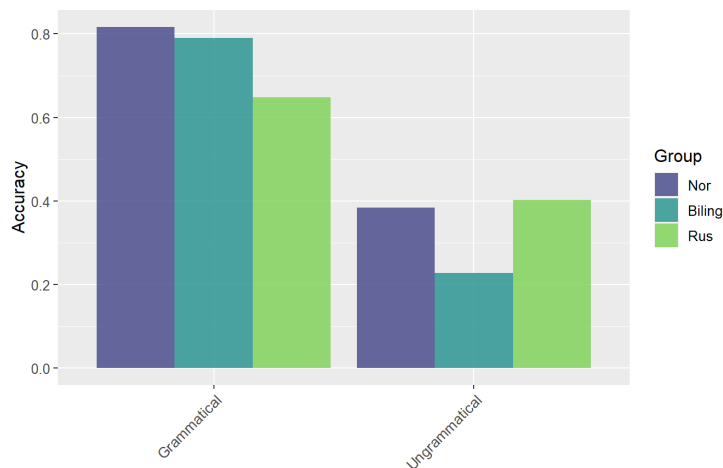


Once again, the bilingual group outperformed the two monolingual groups reaching 80% total accuracy, showing 85% correct performance with grammatical and 75% with ungrammatical items. The L1 Norwegian group score the second showing the overall 74% accuracy in this condition (83% with grammatical and 65% with ungrammatical sentences). The Russian group was at a disadvantage, as expected, reaching only 54% target-like performance overall and being more accurate in correctly identifying grammatical sentences (68%) rather than ungrammatical (40%) which once again proves that speakers of article-less languages experience significant challenges acquiring articles and accept bare nominals in different types of contexts.

## Abstract Genericity

Let me remind us what abstract genericity condition represented in the current study. As we have learnt in section 4.2.1, there is a group of abstract nouns that appears in bare form in English, while their cognates in Norwegian require the use of the definite article. Therefore, Norwegian differs from English, while Russian is similar. Genericity with abstract nouns represents a condition which makes it hard to make any straightforward predictions about the performance of the language groups tested. Although there is an obvious mismatch between the Norwegian and English, and it seems that the L1 Rus groups is at an advantage, there is a possibility that the speakers of Russian will accept both definite and indefinite forms in generic context.

*Figure 8. Abstract Genericity, accuracy by grammaticality and group*



Despite our predictions that L1 Russian group will outperform their Norwegian peers, we could see an opposite trend, as visualised in Figure 8. L1 Norwegian learners scored the highest reaching 61% total accuracy, 83% in grammatical sentences and only 38% in ungrammatical sentences.

L1 Russian group scored in between showing 53% total accuracy and 64% in grammatical and 40% ungrammatical sentences. The bilingual group scored the lowest (51% total accuracy) and was significantly less accurate in noticing ungrammatical generic contexts (23%) than grammatical (79%).

Despite the differences between the groups, all three groups were less sensitive to ungrammatical sentences and accepted definite form in generic contexts. The L1 Russian group was numerically more accurate in detecting ungrammatical sentences than their L1

Norwegian and bilingual peers which is understandable since namely Norwegian speaking learners experience strong negative influence from the cognates in their L1 that appear in definite form in identical contexts. It seems that the bilingual and L1 Norwegian speakers have had enough exposure to figure out that the bare nominals are acceptable in English, however, they have not received enough negative evidence to understand that definite form is not used with this group of abstract nouns in English.

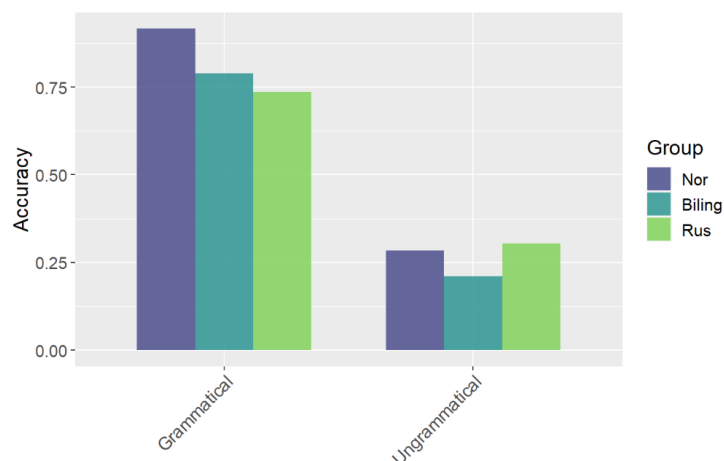
Our observations are partially in line with the findings from Jensen et al. (2022) who reported a low accuracy rate in genericity condition for bilinguals and monolingual controls and attributed it to the fact that typically the participants from this age group have limited exposure to abstract and mass nouns in English. The main difference is that in the researchers' experiment the L1 Rus group outperformed the two other groups. It is possible that given a more balanced dataset we would also be able to report stronger facilitative effect of Russian in Genericity condition.

#### Genericity with plurals

The second condition targets the use of plural nouns in generic contexts. In English, definite plural NPs cannot have generic reading, and therefore only indefinite NPs are used to serve this purpose, while Norwegian allows both indefinite and definite plural form to appear in generic contexts. Nominals in Russian do not distinguish between indefinite and definite forms, which makes Russian similar to English, whereas Norwegian only partially overlaps with English.

We predicted that the L1 Norwegian learners will accept sentences with both definite and indefinite plurals sentences due both forms being used in generic contexts. Russian learners will accept grammatical sentences; however, it is unclear how they will behave in regard to ungrammatical sentences as they may fluctuate between both definite and indefinite plural forms. The results of the analysis are presented below in Figure 9.

Figure 9. Genericity with plural NPs, accuracy by grammaticality and group



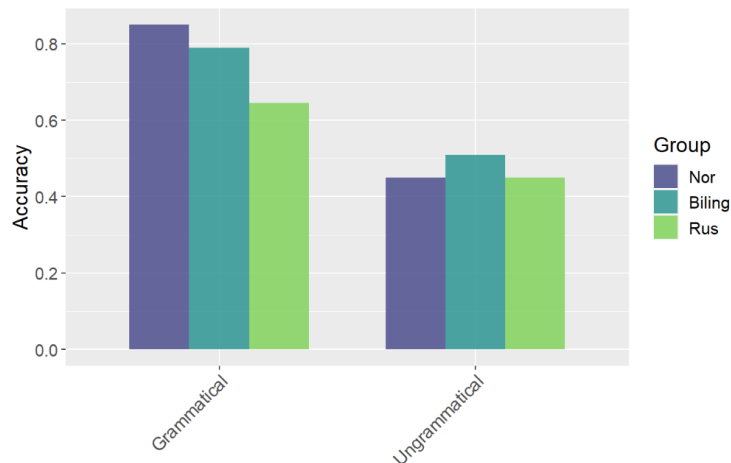
Overall, the L1 Norwegian learners score the highest out of the three groups (60% total accuracy). As predicted, they were significantly more accurate with grammatical items (92%) than with ungrammatical (28%). The L1 Russian group scores the second (52% accuracy rate); it accepted grammatical sentences at 74% accuracy rate, and was slightly more accurate in detecting ungrammatical generic contexts (31% accuracy) than the other groups, although this difference is rather insignificant to be able to make any conclusions. The bilinguals were slightly less accurate than their monolingual peers and performed at 50% accuracy rate correctly identifying grammatical sentences with 79% accuracy and ungrammatical with only 21%.

Before we move on to the discussion of the conditions targeting subject-verb agreement, I will use this space to sum up the observations made for the conditions testing articles. Overall, we could see higher accuracy rate in conditions targeting the use of definite vs indefinite article rather than in the conditions focusing on genericity in all three groups. The Norwegian and bilingual learners patterned in their behaviour as both groups were noticeably more accurate in the Articles conditions than in Genericity conditions, while L1 Russian speakers showed almost no difference in the overall performance across all conditions which indicates that there is strong facilitative and non-facilitative influence from learners' L1s in the acquisition of definiteness and genericity in English. How does proficiency interact with accuracy in these conditions remains an open question that we will address by means of statistical analysis described in section 5.2.2.

#### SVA with singular subjects, local agreement

Overall, L1 Russian group was expected to outperform L1 Norwegian groups due to the presence of agreement category in their native language. The bilingual learners were expected to perform in-between due to co-activation of both languages. The results are shown in Figure 10.

Figure 10. Local agreement with singular subjects, accuracy by grammaticality and group



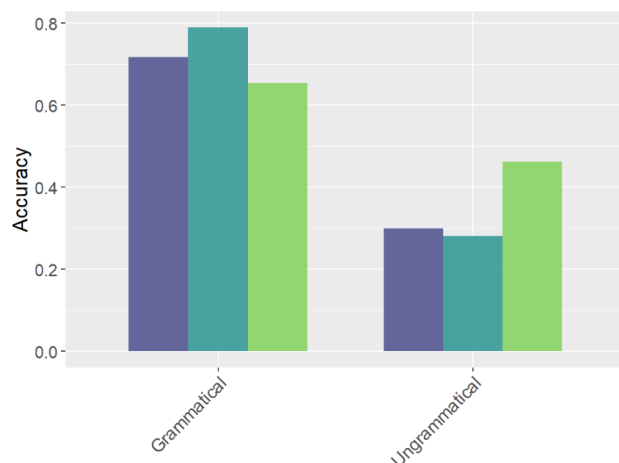
In brief, our predictions were not met, at least as far as the raw data (not controlled by proficiency) is concerned. The Norwegian controls and the bilinguals scored the highest reaching total 65% accuracy, while the L1 Russian group performed less accurately (55%). In the grammatical sentences, the Norwegians (85%) outperformed the bilinguals (79%) and the L1 Russian group (64%). In the ungrammatical sentences, all language groups score less target-like, with the bilinguals appearing to be slightly more sensitive to ungrammatical agreement (51%) than their Russian and Norwegian peers (45% accuracy for both groups).

#### SVA with plural subjects, local agreement

Subject-verb agreements with plural subjects is typically assumed to be less challenging than subject-verb agreements with singular subject, which is also supported by the research findings reporting that errors of omissions are more frequent than errors of hypercorrection when it comes to inflectional morphology. The analysis of our dataset showed a different picture since the groups performed less accurately in agreement with plural subjects compared to agreement with singular subjects. The results of judgements of grammatical vs ungrammatical sentences are shown in Figure 11.



Figure 11. Local agreement with plural subjects, accuracy by grammaticality and group

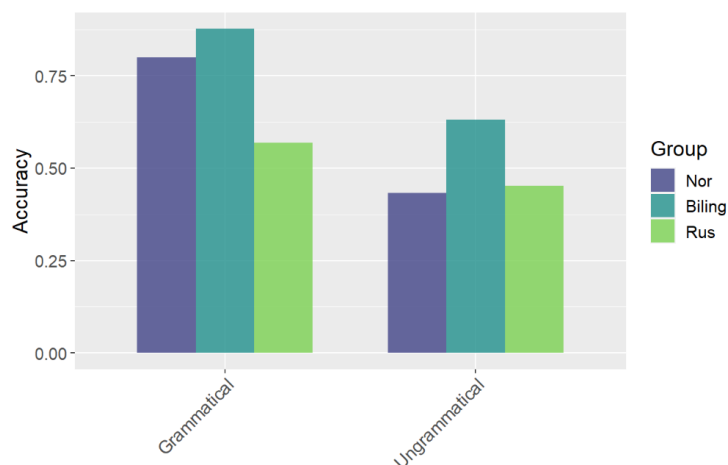


We predicted that L1 Russian group would outperform L1 Norwegian groups due to the presence of agreement category in their native language, whereas the bilinguals would perform in-between the groups. This time, our prediction was borne out as overall the L1 Russian group scored the highest (56%), followed by the bilinguals (53%) and the L1 Norwegian group (51%). In the grammatical sentences the bilinguals were the most accurate (79%) followed by Norwegian (72%) and Russian (65%) learners. However, L1 Russian group was able to identify ill-formed items at the highest accuracy rate (46%) out of all groups, followed by Norwegians (30%) and bilinguals (28%).

#### SVA with singular subjects, long-distance agreement

Overall, we expected that long-distance agreement will be more challenging than the local agreement for all three groups tested due to an increased cognitive load associate with the processing of such sentences. We hypothesized that the L1 Russian speakers may perform better than L1 Norwegian speakers in conditions testing long-distance agreement as Russian has a case system that marks syntactic roles of nouns, including subject and object, which may make it easier for the L1 speakers to detect long-distance agreement errors.

Figure 12. Long-distance agreement with singular subjects, accuracy by grammaticality and group



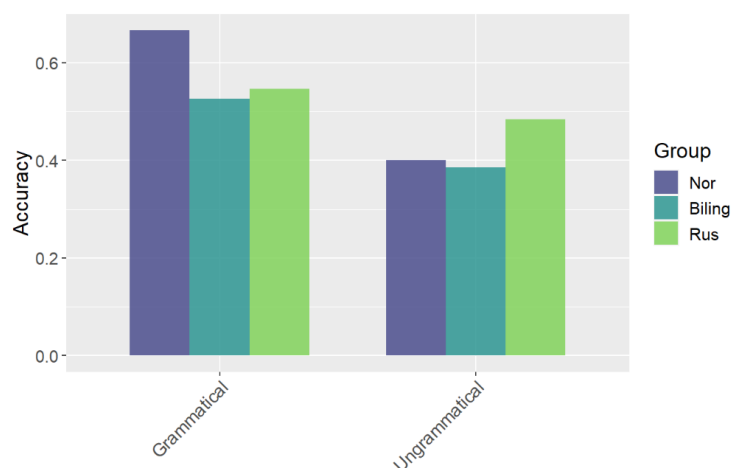
As it follows from Figure 12, the highest accuracy in long distance agreement with singular subjects was shown by the bilingual group (75%), that was more accurate both in accepting grammatical sentences (88%) and detecting ungrammatical agreement (63%). The L1 Norwegian group scored the second (62% overall accuracy), identifying correctly grammatical sentences at 80% accuracy rate and ungrammatical with 43% accuracy. The L1 Russian group were slightly more sensitive to violation of agreement (45%) than their Norwegian peers but were less accurate in their judgements of grammatical sentences (57%) compared to other groups.

#### SVA with plural subjects, long-distance agreement

Finally, we come to the condition testing long distance agreement with plural subjects which turned out to be the most problematic subject-verb agreement condition for all three language groups tested in the study as the overall accuracy hardly reaches 50% threshold (L1 Norwegian – 53%; L1 Russian – 52%; and the bilinguals – 46% target-like performance). The results are most likely due to agreement attraction errors that occur when a verb agrees with an adjacent noun rather than its subject which is explained by increased cognitive load associated with the processing of such sentences not only by L2/L3 learners but also native speakers.

Figure 13 illustrated how our groups differ in their judgements of grammatical and ungrammatical items.

Figure 13. Long-distance agreement with plural subjects, accuracy by grammaticality and group



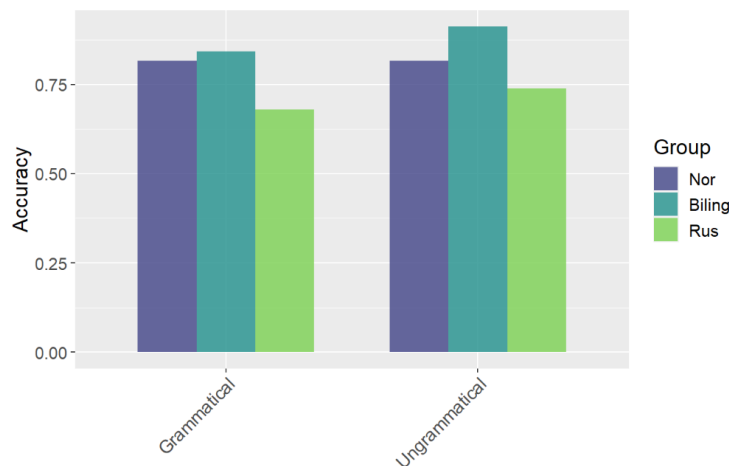
When it comes to grammatical agreement, the Norwegian learners performed at 67% target-like rate, followed by Russian learners (55%) and finally the bilingual learners (53%). The ungrammatical agreement was identified more accurately by L1 Russian groups (48%) compared to L1 Norwegian (40%) and the bilingual group (39%).

To sum up the results of the conditions testing subject-verb agreement, we can highlight a low-accuracy trend in all language groups since in the majority of conditions the total accuracy rarely went above 55% threshold, except for long distance agreement with singular subjects where the bilinguals were noticeably more accurate (75%) than their monolingual peers (L1 Nor – 62%; L1 Rus – 51%). In my opinion, the low accuracy with subject-verb agreement could be partially attributed to the difficulties that are associated with the acquisition of functional morphology. The domain of morphology is believed to be the most challenging as it encodes non-transferable features which make up the differences between the languages and thus have to be learnt explicitly as other lexical items (Slabakova, 2013).

### Topicalised sentences

Finally, once we have reviewed the main test conditions and can move to the filler conditions which function not only as distractors but also serve as an additional tool of detecting cross-linguistic influence. For the fillers, it was decided to explore a syntactic domain (by testing Topic and Adv-V word order) since the main conditions focus on syntax-semantics and morpho-syntax grammar areas. The results for the Topic condition are shown in the figure below.

Figure 14. Topic, accuracy by grammaticality and group

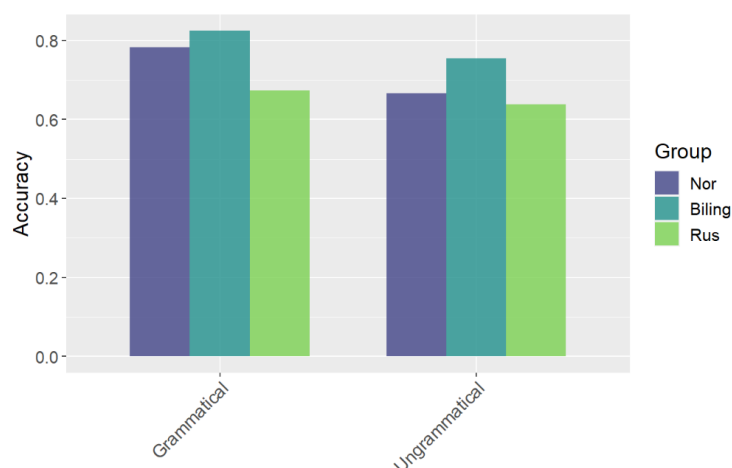


Overall, all groups performed at high accuracy rate, with the bilingual group being in the lead (88%) followed by the L1 Norwegian (82%) and L1 Russian (71%) groups. We expected that the Norwegian speaking participants would perform worse than L1 Russian group due to non-facilitative influence of V2 word order in Norwegian, however, our predictions have not borne out. The bilinguals turned out to be more accurate identifying correctly both grammatical and ungrammatical word order (84% vs 91%) followed by L1 Norwegian group (82%) and L1 Russian (68% vs 74%).

#### Adverb-verb inversion

The Adverb-verb word order configuration makes up our final condition and represents another area of mismatch between English and Norwegian. In spite of our predictions that L1 Russian group would perform better than the other groups, our data shows that the bilinguals outperformed the L1 Norwegian and L1 Russian learners both in grammatical and ungrammatical sentences showing overall 79% accuracy, followed by their Norwegian (72%) and Russian (66%) peers.

Figure 15. Adv-V word order, accuracy by grammaticality and group



To sum up, all groups performed with relatively higher accuracy in filler conditions, especially compared to *Genericity* and *Agreement* conditions. This is not surprising since syntactic properties are typically acquired earlier than morphological or semantic properties. Moreover, word order configurations are assumed to be more salient in the input, making the acquisition of these properties proceed with less difficulty (McDonald, 2000, 2006). This is probably the reason why we observed high target-like performance among L1 Norwegian and the Norwegian-Russian bilinguals that were expected to perform less accurately due to non-facilitative influence from V2 word order in Norwegian.

### 5.2.2 Statistical analysis of the results, controlled for proficiency

In the previous section we have reviewed how the participants from three language groups performed in different conditions tested in the AJT test. However, we need to keep in mind an important limitation of the dataset, namely that the participants from L1 Russian group are significantly less proficient in English compared to their Norwegian and Bilingual peers. Therefore, the above-discussed results alone cannot not give us reliable information about cross-linguistic influence.

There are different ways of how one may approach this limitation to ensure that the three groups have comparable proficiency levels. One of them is to match the groups by recruiting more participants from the L1 Russian group with higher English proficiency levels, or to engage more L1 Norwegian students with lower proficiency. This approach, however, was not an option for us as it is rather time-consuming especially in light of the challenges that were experienced in the process of recruiting the Norwegian participants. Reducing the dataset by choosing a certain cut-off point or by selecting the equal number of the participants

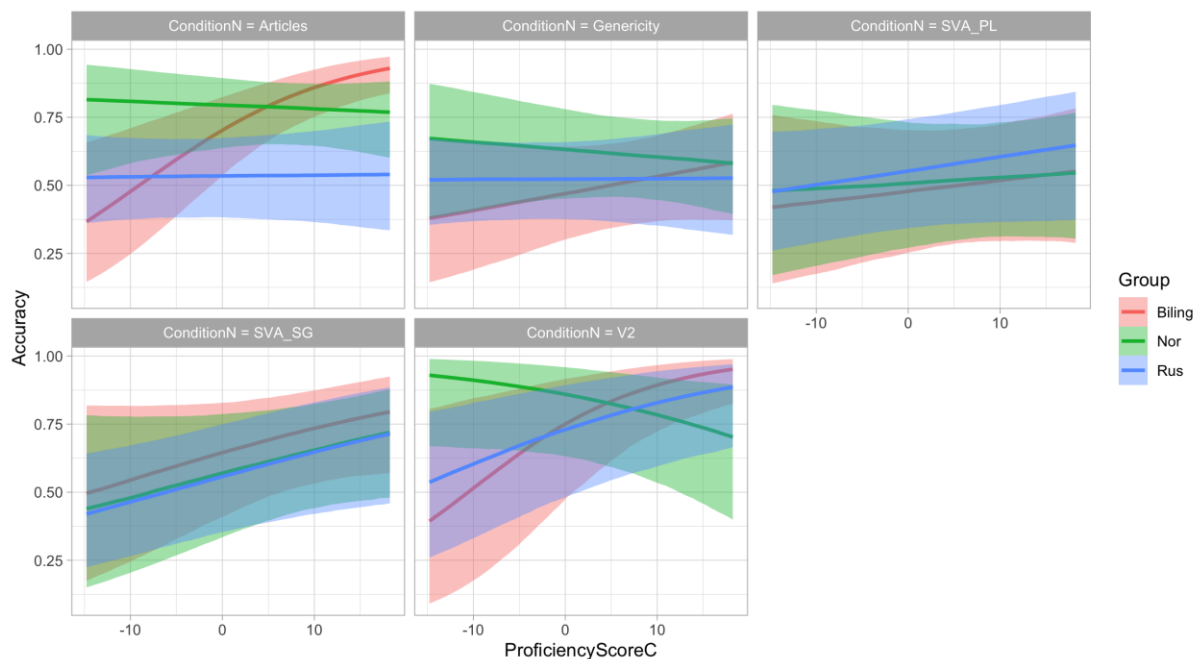
from each proficiency level was not within our range of choices either since there are extremely few participants in the Russian dataset with high proficiency in English, and only a handful of participants from the Norwegian dataset with low-intermediate proficiency.

Instead, we have decided to address this issue with the help of statistical analysis that would enable us to examine the effect of the language group in different conditions while controlling for the influence of proficiency. To analyse the results statistically, we fit a Bayesian mixed effects logistic regression model using the ‘brms’ package (Bürkner 2020, Stan Development Team 2017) in R (R Core Team 2020). The model is built to predict the accuracy of participants' responses based on the interaction between Group, Condition and Proficiency, as well as random intercepts by participant and item and a random slope for condition by participant. Weakly informative regularizing priors were used for all predictors (see Appendix H for more information about the model).

The initial number of sub-conditions ( $n=10$ ) was too big for us to be able to fit in the model, so we have combined 10 sub-conditions into 5 conditions: *Articles* = (Obligatory\_DEF and Obligatory\_INDEF), *Genericity* = (Abstract\_Genericity and Genericity\_Plural\_NPs), *SVA\_SG* = (SVA\_SG\_LOC and SVA\_SG\_LONG), *SVA\_PL* = (SVA\_PL\_LOC and SVA\_PL\_LONG), and finally *V2* = (Topic and Adv-V)

Then, we have estimated the marginal means for each group, and obtained the posterior distributions of the effects of proficiency scores using the Markov Chain Monte Carlo (MCMC) method. Figure 16 shows the predicted accuracy for each condition by Group and Proficiency score. As it follows from the charts, the effects of proficiency on the accuracy score in the AJT differ across the conditions and language groups. While the model does not predict any clear-cut differences between the groups in the conditions testing subject-verb agreement with singular and plural subjects, there are some interesting trends that can be observed in the other conditions and thus need further inspection.

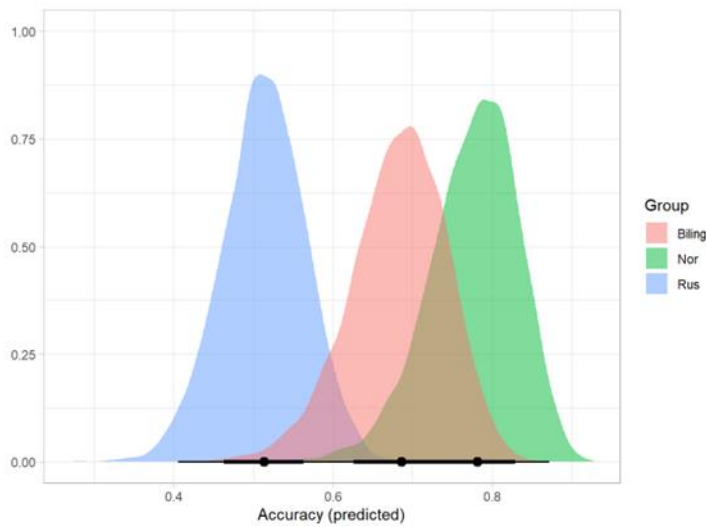
Figure 16. The effect of Proficiency score on mean accuracy by condition



The first graph depicts the effect of proficiency score on the mean accuracy in *Articles* conditions and shows that while the accuracy of the L1 Russian and L1 Norwegian participants does not change as the proficiency in English increases, the bilinguals' accuracy receives a boost as their proficiency in English improves.

Let us have some space to recap our main predictions. We expected that if the co-activation of the previously acquired languages indeed takes place in L3 Acquisition, then the bilinguals may experience both facilitative and non-facilitative influence from their L1s which can result in the in-between performance, which is exactly what we observe in the *Articles* condition. The plot of the predicted accuracy by group for mean proficiency (Figure 17) shows that the bilingual group indeed scores in between the two L2 groups. Additionally, our expectations for the monolingual controls were met as well; the L1 Norwegian group scores the highest due to the facilitative effect of Norwegian into English, while the L1 Russian group scores the lowest since the lack of articles in their L1 makes it harder to acquire the language with the grammaticalized article system.

Figure 17. Predicted accuracy by group for mean proficiency (Articles condition)



Moreover, we have inspected how proficiency in English affects mean accuracy in *Articles* condition more closely. To do this, we have estimated the effect of group and language proficiency on predicted accuracy using the ‘emtrends’ function. The results are summarised in the table below and are visualised in Figure 18.

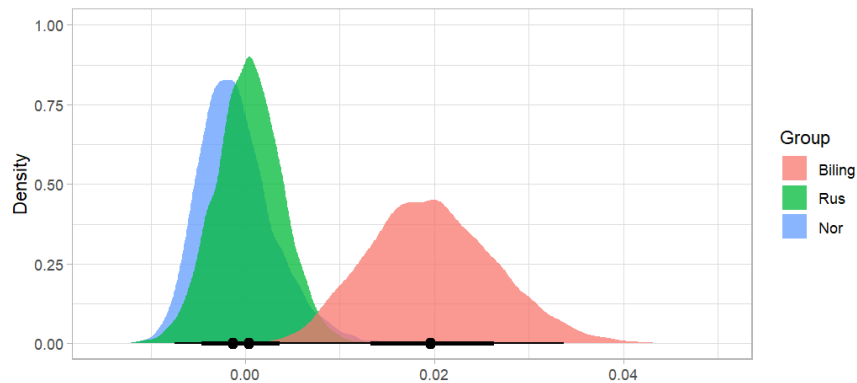
Table 8. The estimated marginal effect of Proficiency Score for each group (Articles condition)

| Group         | ProficiencyScoreC.trend | lower.HPD | upper.HPD |
|---------------|-------------------------|-----------|-----------|
| <i>Biling</i> | 0.019519                | 0.00735   | 0.03315   |
| Rus           | 0.000366                | -0.00670  | 0.00705   |
| Nor           | -0.001355               | -0.00801  | 0.00731   |

The results indicate that there is strong positive effect of proficiency on the accuracy score only for the bilingual group, with a marginal mean of 0.019519 and a 95% HPD interval ranging from 0.00735 to 0.03315.



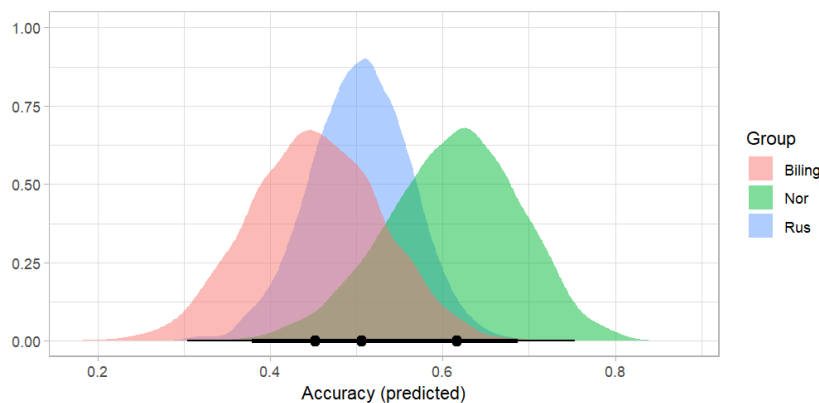
Figure 18. Average marginal effect of Proficiency (Articles condition)



On the other hand, the estimated effect of proficiency score is closer to zero for the Russian and Norwegian groups, with marginal means of 0.000366 and -0.001355, respectively. The 95% HPD intervals for these groups also contain zero, indicating that there was no effect of proficiency on the mean score for Articles conditions among the monolingual groups. However, there is a crucial difference between the monolingual controls: while the L1 Russian group showed low accuracy in Articles condition despite the proficiency score, the L1 Norwegian group performed at high accuracy rate even at lower proficiency levels, which indicates strong facilitative influence of L1 Norwegian in the acquisition of English articles.

Next, we move on to the second condition *Genericity*. Figure 19 shows the predicted accuracy for mean proficiency across three language groups. As it follows from the plot, the results of statistical analysis did not support our prediction that the L1 Russian group would outperform the bilinguals and L1 Norwegian group. In fact, the L1 Norwegian group scores the highest, followed by L1 Russian and the bilingual groups.

Figure 19. Predicted accuracy by group for mean proficiency (Genericity condition)



The results of the analysis of the marginal effect of proficiency on accuracy for each group are summarised in Table.

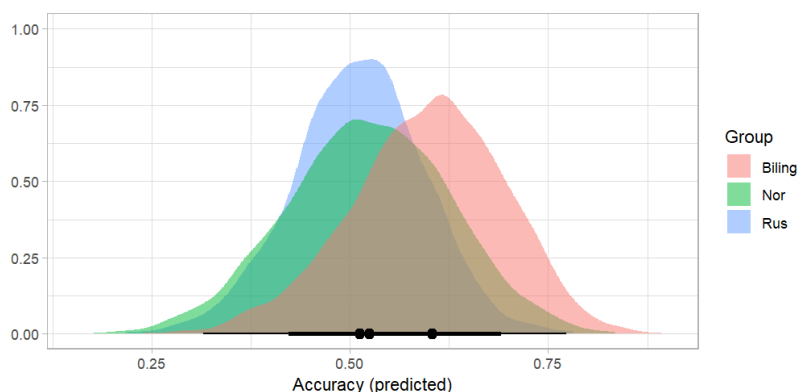
Table 9. The estimated marginal effect of Proficiency Score for each group (*Genericity* condition)

| Group         | ProficiencyScoreC.trend | lower.HPD | upper.HPD |
|---------------|-------------------------|-----------|-----------|
| <i>Biling</i> | 0.006092                | -0.00587  | 0.01753   |
| Rus           | 0.000234                | -0.00679  | 0.00737   |
| Nor           | -0.002635               | -0.01136  | 0.00797   |

As it follows from the table, the strongest effect of proficiency on accuracy in *Genericity* condition was in the bilingual group, followed by L1 Russian group that shows a slightly positive trend in the average marginal effect of Proficiency, whereas the Norwegian group had a slightly negative trend. However, the differences between the groups are small and the confidence intervals for all groups overlap. To sum up, *Genericity* turned out to be challenging for all groups and it is hard to comment the effects of cross-linguistic influence in this condition since it is not fully clear whether one of the languages actually provides facilitation. Based on the results, it seems that both Norwegian and Russian-speaking learners struggle with generic contexts, while for the Norwegian group the negative influence is coming from the mismatch in their L1, for the Russian controls it stems from the lack of articles in general. If we assume that both languages have non-facilitative effect into L3 English, then we can hypothesize that the bilinguals perform worse because of simultaneous non-facilitative influence from their L1s.

Next, we move on to *subject-verb agreement*. In the beginning of this section, we have reviewed the graph summarizing the predicted effect of proficiency score on mean accuracy in each condition. Based on that plot, we have not been able to observe any clear-cut difference between the group in two conditions targeting subject-verb agreement. The closer inspection of these conditions did not reveal any new trends since all groups were almost indistinguishable in these conditions. When it comes to subject-verb agreement with singular subjects (*SVA\_SG*), the data shows that the predicted accuracy (Figure 20) is the highest for the bilingual group, followed by L1 Russian and L1 Norwegian groups.

Figure 20. Predicted accuracy by group for mean proficiency (SVA\_SG condition)



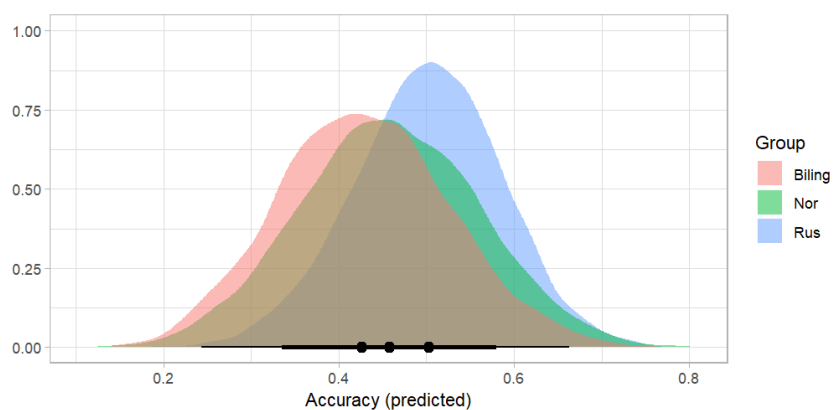
The marginal effect of proficiency on accuracy is similar for all three groups in the *SVA\_SG* condition, with slightly higher values for the bilingual and Russian groups than for the Norwegian group. Overall, the results show that higher proficiency scores are associated with slightly higher accuracy in all three groups.

Table 10. The estimated marginal effect of Proficiency Score for each group (*SVA\_SG*)

| Group  | ProficiencyScoreC.trend | lower.HPD | upper.HPD |
|--------|-------------------------|-----------|-----------|
| Biling | 0.00908                 | -0.00332  | 0.0231    |
| Rus    | 0.00899                 | 0.00141   | 0.0165    |
| Nor    | 0.00837                 | -0.00290  | 0.0209    |

When it comes to subject-verb agreement with plural subjects (*SVA\_PL*), we also do not observe any statistically significant differences between the groups, as illustrated in the accuracy plot presented in Figure 21.

Figure 21. Predicted accuracy by group for mean proficiency (SVA\_PL condition)



Although L1 Russian group slightly outperformed the L1 Norwegian and bilingual groups, the difference between the predicted mean scores is relatively small. The summary of the average marginal effect of proficiency shows a positive trend for all groups, however, it appears that there is no clear effect of proficiency on accuracy for any of the groups since point estimate is close to zero for all groups, and the HPD intervals include zero. This suggests that the effect of proficiency on accuracy is not statistically significant.

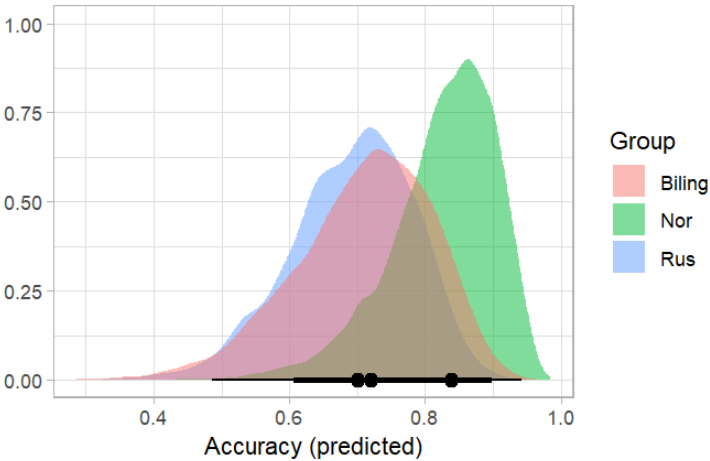
Table 11. The estimated marginal effect of Proficiency Score for each group (SVA\_PL)

| Group  | ProficiencyScoreC.trend | lower.HPD | upper.HPD |
|--------|-------------------------|-----------|-----------|
| Biling | 0.00379                 | -0.00847  | 0.0166    |
| Rus    | 0.00500                 | -0.00325  | 0.0126    |
| Nor    | 0.00195                 | -0.00940  | 0.0128    |

To sum up, based on the results of the model, it appears that there is not a substantial difference in accuracy between the three groups in SVA\_SG and SVA\_PL conditions. The marginal effects of proficiency on accuracy are all positive but relatively small.

Finally, we approach the final condition tested in the model, namely V2 condition, that encompasses two sub-conditions targeting Topic and Adv-V word order. Figure shows the predicted accuracy by group for mean proficiency.

Figure 22. Predicted accuracy by group for mean proficiency (V2 condition)



Based on the plot, we can see that the bilingual group patterns with L1 Russian, while L1 Norwegian group is predicted to perform at the highest accuracy. This is quiet an interesting

outcome which goes against our prediction since we were expecting L1 Norwegian learners to perform less accurately due to non-facilitative influence of V2 word order.

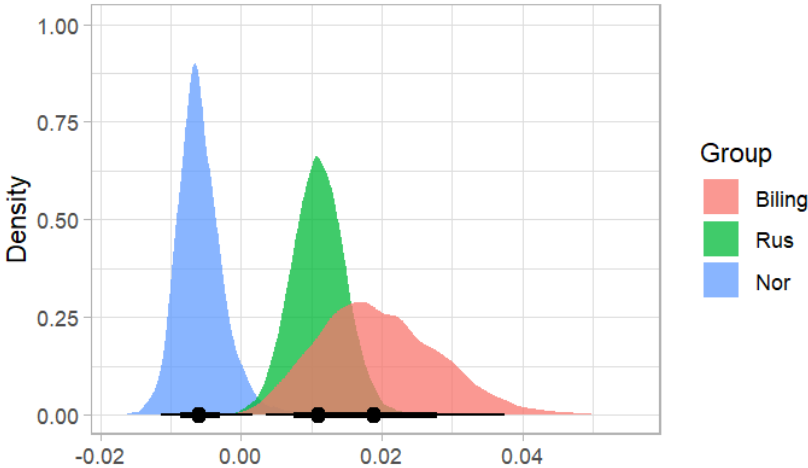
Further, I have estimated the effect of group and language proficiency on predicted accuracy. The results are shown in Table 13.

Table 12. The estimated marginal effect of Proficiency Score for each group (V2 condition)

| Group         | ProficiencyScoreC.trend | lower.HPD | upper.HPD |
|---------------|-------------------------|-----------|-----------|
| <i>Biling</i> | 0.01877                 | 0.00388   | 0.035752  |
| <i>Rus</i>    | 0.01096                 | 0.00344   | 0.018144  |
| Nor           | -0.00614                | -0.01191  | 0.000931  |

The data indicates that, on average, the bilingual participants have the highest predicted accuracy across all proficiency levels in the V2 condition. In terms of the effect of proficiency score on accuracy, there is a positive trend for bilingual (0.01877) and Russian learners (0.01096), however, there is a negative trend (-0.00614) for L1 Norwegian participants, which is best seen in Figure. In other words, higher proficiency scores are associated with higher accuracy in the bilingual and L1 Russian groups but with lower accuracy in L1 Norwegian.

Figure 23. Average marginal effect of Proficiency (V2 condition)



The trend observed in the Norwegian group is rather unexpected and, in my opinion, there are two possible interpretations of these findings. First of all, the dataset for L1 Norwegian controls comprises high-proficiency learners, with the lowest proficiency score of 17 points, compared to the bilingual and L1 Russian groups with the lowest scores of 10 and 4 points, respectively. The wider range of proficiency scores in the latter two groups allows us to make

more precise predictions about the developmental trends for these learners. In the Norwegian group, on the contrary, we have insights only for intermediate and high-proficiency learners, making it impossible to determine how low-proficiency learners would have performed in this condition. We assume that the Norwegian participants who took part in this study have already acquired the word order in English and therefore have performed almost at ceiling. It is plausible that low-proficiency learners would have been influenced by the non-facilitative V2 order in Norwegian, as indicated by the trends observed in the bilingual group.

Secondly, the negative trend observed in the Norwegian group could be potentially attributed to the continuous non-facilitative influence stemming from V2 word order in Norwegian that could have made some learners hesitate and fluctuate between the correct and incorrect word order configurations.

### **5.3 The effects of HL use on CLI from Russian**

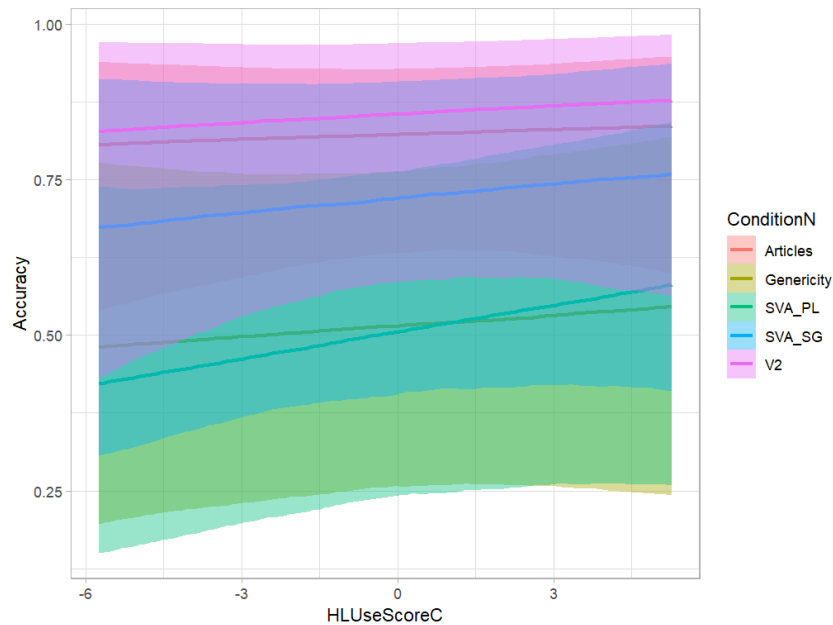
In order to investigate whether cross-linguistic influence from Russian occurs in regard to the bilinguals' dominance in this language, we have administered a language background questionnaire describe in section (4.2.3) and calculated a HL use score based on the answers provided by the bilingual respondents. This resulted in each bilingual candidate receiving a HL use score ranging from 8 to 19 points which could be used as a continuous predictor in a statistical analysis (the detailed information about the bilinguals' profiles and HL use score variables is available in Appendix E).

We predicted that the bilinguals with a higher language use score in Russian will be more accurate than the bilinguals with a lower HL use score in conditions that give Russian facilitative effect. Alternatively, when testing for properties in which Russian is the non-facilitative language, the bilinguals with a higher HL use score in Russian were expected to be less accurate than their bilingual peers with a lower score.

To analyse the data statistically, we fit another Bayesian logistic regression model. This time the model is built to predict the accuracy of the participants' responses based on the interaction between Condition and HL use score, while Proficiency score and Age are added as co-variates with random intercepts for Participant and Item and random slopes for Condition by each participant (Appendix I).

The conditional effects plot (Figure 24) shows the predicted effect of HL use score on accuracy for each condition.

Figure 24. The predicted HL use effect on accuracy by condition



The plot suggests that we do not have enough evidence to claim that HL use score affects the bilinguals' accuracy in conditions testing Articles, Genericity and V2. However, we can observe some positive trend in the SVA\_PL and SVA\_SG conditions.

To check whether this observation is correct, the marginal effects analysis was conducted to examine the effect of HL use score on accuracy for each condition separately.

Table 13. The estimated marginal effect of HL use score for each group by condition

| Condition  | HLUseScoreC.trend | lower.HPD | upper.HPD |
|------------|-------------------|-----------|-----------|
| Articles   | 0.00244           | -0.0190   | 0.0249    |
| Genericity | 0.00559           | -0.0253   | 0.0341    |
| SVA_PL     | 0.01383           | -0.0197   | 0.0415    |
| SVA_SG     | 0.00747           | -0.0211   | 0.0366    |
| V2         | 0.00452           | -0.0202   | 0.0312    |

The results show that all credible intervals include 0, indicating that we do not have strong (>95% certainty) evidence for an effect of HL use score in any of the conditions. However,

the trend in SVA\_PL condition is still rather visible and stands out from the rest of conditions, and we decided to explore it more thoroughly.

Figure 25. Average marginal effect of HL use score on accuracy by condition

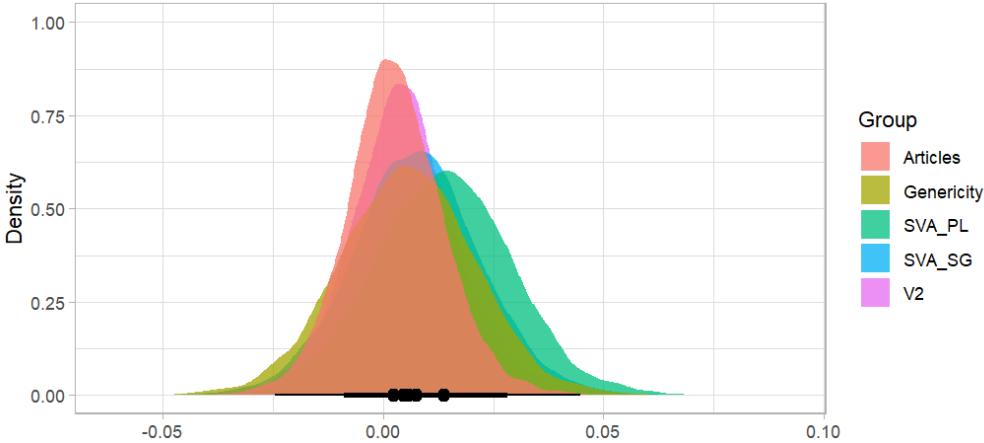
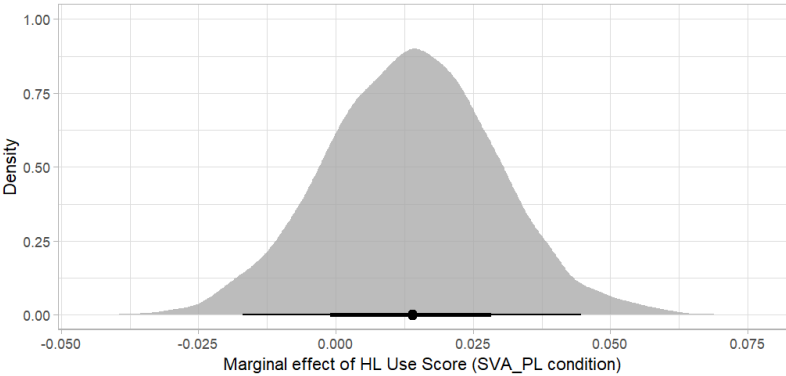


Figure 25 shows the marginal effects plot depicting the distribution of the marginal effect of HL use score for each condition. The plot suggests that there is some weak evidence for an effect of HL use in the SVA\_PL condition. Moreover, as it follows from the graph in Figure 26, there is relatively weak but still positive evidence that HL use affected the participants’ accuracy in the SVA\_PL condition (large portion of the distribution above 0).

Figure 26. Marginal effect of HL use score on accuracy (SVA\_PL condition)



Next, we have conducted the probability of direction analysis to calculate the proportion of the distribution where the value of the effect is above 0. The results of the analysis showed that we can be about 82% certain that there is a positive effect of HL use score in the SVA\_PL condition. As for the other agreement condition – SVA\_SG, the probability of direction analysis reported only 70% probability, which is relatively weak evidence to claim that HL use score had significant effect on the bilinguals’ accuracy in this condition.



To sum up, we have not been able to find strong (>95% certainty) evidence for an effect of HL use score in any of the conditions. However, it is highly likely that it did have positive influence on the accuracy score in SVA\_PL condition since we were able to find 82% certainty probability of direction which means that we can be almost 82% certain that the higher HL use score the bilingual participant has, the more accurate they are in SVA\_PL condition.

## 6 Discussion

In this chapter, we discuss the research questions and predictions in light of the results of this study. The present study was guided by three primary research questions:

**RQ1:** Do both previously acquired languages affect the acquisition of L3 English, or is only one of the languages chosen as the source of crosslinguistic influence?

**RQ2:** Is CLI always facilitative, or can it also be non-facilitative?

**RQ3:** To which extent will CLI from Russian (the non-dominant language) be related to language use measure in that language?

In line with the Linguistic Proximity Model (Westergaard et al., 2017), we hypothesized that L3 acquisition is a step-by-step acquisition process, in which both early-acquired languages are co-activated based on structural similarity with the L3 and can have both facilitative and non-facilitative effect on the development of a new language. Moreover, based on the recent research findings (Lloyd-Smith et al., 2017, 2019, 2020) we suggested that CLI from Russian can be predicted by the amount of Russian language (HL) use, operationalized as the ‘HL Use Score’ in this study.

In order to investigate the research questions posed in this thesis, we administrated an acceptability judgment task designed to test the acquisition of articles and subject-verb agreement. Each condition consisted of 4 smaller sub-conditions: articles comprised sub-conditions targeting the use of definite and indefinite article, abstract genericity and genericity with plurals, while subject-verb agreement was tested in local and long-distance agreement with singular and plural subjects. Additionally, the AJT included two sub-conditions targeting word order that were initially designed as fillers, however, we included them further in the analysis as an additional tool of detecting cross-linguistic influence.

Following the principles of a subtractive language group design (Westergaard et al, 2023), the performance of Norwegian-Russian bilingual children ( $n = 19$ ) was compared to two control groups – L1 Norwegian ( $n = 20$ ) and L1 Russian ( $n = 106$ ) learners of English.

To answer research questions 1 and 2, I analysed the accuracy scores of the groups in each condition. Due to some limitations that have been outlined earlier in this paper, the analysis of the AJT was conducted in two steps. First, I have presented a descriptive analysis of the raw dataset in which the participants are not matched by proficiency. This analysis showed that the bilingual participants performed similarly to the L1 Norwegian learners, and both groups outperformed the L1 Russian learners in most conditions. These results were not surprising given that the L1 Russian group had significantly lower proficiency in English compared to their Norwegian-speaking peers. Therefore, we could not draw any definitive conclusions about cross-linguistic influence from these results alone.

To obtain more reliable data on cross-linguistic effects, we conducted a Bayesian mixed effects logistic regression analysis that allowed us to predict the accuracy of participants' responses while controlling for their proficiency in English. Since statistical analysis allows us to assess cross-linguistic effects more accurately, I would like to discuss the research questions posed in this study in light of these findings.

I will repeat that to analyse the results statistically, the initial number of sub-conditions ( $n=10$ ) had to be reduced to 5 conditions: Articles, Genericity, SVA with singular subjects, SVA with plural subjects, and V2. The results of the analysis showed that effects of proficiency on accuracy score in the AJT differed across the conditions and language groups.

Before we move on to the discussion of the results, I would like to summarise what our main predictions were in regard to research question 1 and 2. Drawing on the tenets of the Linguistic Proximity Model, we predicted that the monolingual controls would outperform each other on the conditions where their L1 is similar to English. The bilinguals were expected to perform in-between the two L2 groups because of simultaneous facilitative and non-facilitative influence from Russian and Norwegian. Alternatively, the bilinguals could score the same as the L2 group with which they share relevant linguistic properties. However, it was not expected that the bilinguals would pattern exclusively with one the monolingual groups across all conditions, as it would suggest that they are influenced by only one of the languages.

The results of the current study partially supported our predictions. Overall, the performance of our language groups differed based on the tested linguistic property. In sub-conditions testing *subject-verb agreement* with singular and plural subjects the model did not report any clear-cut differences between the groups. Although, numerically the bilinguals (SVA\_SG) and L1 Russian group (SVA\_PL) outperformed the L1 Norwegian learners in both SVA conditions, we did not observe any significant differences between the groups to be able to speak of some facilitative effect of Russian into acquisition of agreement category in English. Moreover, the statistical analysis reveals that learners' proficiency in English had very small positive effect on the participants accuracy, meaning that even at high proficiency levels the learners from all language groups struggle with making correct judgements of the sentences targeting agreement. We attribute the low accuracy observed in the SVA conditions to the inherent challenges associated with acquiring functional morphology. Functional morphology is often considered the "bottleneck" of language acquisition, as it involves encoding non-transferable features which make up the differences between the languages (Slabakova, 2013).

*Genericity* condition, that we initially added in the experiment as the condition in which English overlaps with Russian, also turned out to be challenging for all groups. The results of the statistical analysis did not support our prediction that the L1 Russian group would outperform the other two groups. In fact, the L1 Norwegian group scores the highest (but hardly reaches 60% predicted accuracy threshold) followed by L1 Russian and the bilingual groups. It is hard to comment the effects of cross-linguistic influence in this condition since it is not fully clear whether one of the languages actually provides facilitation. The results indicate that both Norwegian and Russian-speaking learners struggle with generic contexts. In the L1 Norwegian group, the difficulties can be explained by negative influence coming from the mismatch in their L1 (Norwegian uses definite form in identical contexts), while the challenges exhibited by the Russian controls stem from the lack of articles in general. If we assume that both languages have non-facilitative effect into L3 English, then we can hypothesize that the bilinguals perform worse because of simultaneous non-facilitative influence from their L1s.

*Articles* condition was more straightforward from the standpoint of making predictions about the expected behaviour of our language groups. We expected that the L1 Norwegian group would score the highest due to the facilitative effect of Norwegian into English, while the L1 Russian group was expected to score the lowest due to lack of articles in their L1. We

predicted that the bilinguals would perform in-between due to simultaneous facilitative and non-facilitative influence stemming from both early-acquired languages. Finally, our predictions were fully borne out. The bilingual group indeed scored in between the two L2 groups. Our expectations for the monolingual controls were met as well since the L1 Norwegian group outperformed the L1 Russian. Moreover, the bilingual group was the only one whose accuracy with articles was positively influenced by their proficiency in English. In other words, the bilinguals with higher proficiency tend to perform at higher accuracy rate, presumably once they have learnt to inhibit non-facilitative influence of Russian, as predicted by the LPM. In the monolingual groups, however, there was no effect of proficiency on accuracy in the Articles condition. While L1 Norwegian controls performed at high accuracy rate even at low proficiency levels, the accuracy of L1 Russian learners did not change with an increase in their proficiency in English. These observations support previous research findings reporting that the acquisition of articles is notoriously challenging for speakers of article-less languages such as Russian.

Finally, V2 condition uncovered another interesting trend. The results of the statistical analysis revealed that the bilingual group patterned with L1 Russian, however, they were not high-accuracy groups despite our predictions. Instead, the L1 Norwegian group was found to perform at the highest accuracy in this syntactic condition. This is quite an intriguing outcome which goes against our prediction since we were expecting L1 Norwegian learners to perform less accurately due to non-facilitative influence of V2 word order. Another surprising finding was that proficiency had a positive effect only in the L1 Russian and the bilingual group, while in the Norwegian group there was a negative trend. In the previous section we have already brainstormed what could account for the negative trend exhibited by the Norwegian learners. Most likely, it can be explained by the limitations of the current dataset. Since the Norwegian participants are represented by intermediate and high-proficiency learners, we are limited in our understanding of how children with low proficiency would have performed in this condition. We assume that the Norwegian participants who took part in this study have already acquired the word order in English and therefore have performed almost at ceiling. It is plausible that low-proficiency learners would have been negatively influenced by the non-facilitative V2 order in Norwegian, as indicated by the trends observed in the bilingual group.

Overall, the findings of the current study align most closely to the predictions made by LPM which allows for cumulative influence of both early-acquired languages and predicts both facilitative and non-facilitative influence into L3 acquisition.

In relation to the first research question, our findings indicate that cross-linguistic influence occurs from both bilinguals' languages based on structural similarity between the languages. We did not observe that the bilinguals patterned exclusively with one of the monolingual control groups. With this said, we can rule out the hypothesis that states that only one of previously acquired languages is used as a source of cross-linguistic influence in L3 acquisition.

In regard to research question 2, the results of this study imply that both facilitative and non-facilitative influence occurs in L3A. Although we have not been able to find significant differences between the language groups in some conditions, the in-between behaviour was documented in the *Articles* condition which suggest that both facilitative and non-facilitative influence is possible in L3/Ln acquisition.

Another important observation that emerged during the analysis was the variation in the developmental trajectories of the linguistic properties under investigation. The accuracy score for the syntactic conditions, especially for topicalised sentences, was relatively high in all three groups, while genericity and subject-verb agreement turned out to be significantly more challenging for all learners, and, as the result, we have not observed noticeable differences between the groups in these conditions. This is not a surprising outcome as it is a well-known fact that syntactic properties are typically acquired earlier than morphological or semantic properties. Moreover, word order configurations are assumed to be more salient in the input, which allows the acquisition of these properties to proceed with less difficulty (McDonald, 2000, 2006). These findings indicate that the acquisition of a new language is affected not only by facilitative or non-facilitative influence from both previously acquired linguistic systems, but also by factors such as saliency and complexity of target linguistic properties.

The final research question addressed in this study pertains to the role of heritage language (HL) use in the crosslinguistic influence from Russian into English. This area of research is relatively new in the field of L3 acquisition, and only a handful of studies examined the influence of language dominance and HL use in L3/Ln acquisition. Following the discussion presented in section 2.3.2, we suggested that language dominance and use might be one of the factors conditioning the selection of source of cross-linguistic influence. Since all bilingual children participating in this study have been residing in Norway since early childhood, we assume that they are more dominant in Norwegian language (based on the assertion that a shift in dominance from HL to societal language takes place within 2–3 years of exposure to

the societal language (Oller et al., 2011). This is the reason why in this study, I decided to focus solely on measuring the use of heritage language. In order to investigate whether cross-linguistic influence from Russian occurs in regard to the bilingual' dominance in this language, each bilingual participant received HL use score based on the responses provided in the language background questionnaire, which was later used as a continuous predictor in the statistical analysis.

We predicted that the bilinguals with a higher language use score in Russian will be more accurate than the bilinguals with a lower HL use score in conditions that give Russian facilitative effect. Alternatively, when testing for properties in which Russian is the non-facilitative language, the bilinguals with a higher HL use score in Russian were expected to be less accurate than their bilingual peers with a lower score.

Our prediction that CLI from the HL would occur proportionately to the use of the HL, was only partially borne out. The Bayesian logistic regression analysis did not report any strong (>95% certainty) evidence for an effect of HL use score in any of the conditions. However, we have found a relatively weak but yet positive effect of HL use in SVA\_PL condition (82 % certainty). Although the effect size does not reach the 'gold standard' of 95% certainty, we believe that there is definitely a positive trend in the predicted direction that deserves to be discussed. We realise that a small sample of bilingual participants ( $n=19$ ) in this study does not allow us generalize the findings beyond the specific sample used in this study. However, it is possible that given a larger dataset, the statistical models might have had more power to show significant effects in other conditions.

Overall, our findings are in line with those reported by Lloyd-Smith et al. (2017) who found that German-Turkish bilingual speakers with a higher HL use score tend to be perceived less German sounding than their peers with a low score. However, the results of this study contradict the findings of the earlier-mentioned studies by Fallah & Jabbari (2018) who reported that cross-linguistic influence stems exclusively from the bilinguals' dominant language of communication; and the recent study of Lloyd-Smith et al. (2021) which found that syntactic CLI is unrelated to the proficiency (dominance) index in the heritage language.

The inconclusive findings may be attributed partially to the differences in methodology, particularly in how researchers measure or operationalize language dominance. According to the systematic review of the background questionnaire administrated to bilinguals (Kaščelan

et al, 2022) there are at least 48 questionnaires quantifying bilingual experience in children. The use of different questionnaires introduces variability in how researchers assess language dominance. This variability in methodology makes it challenging to compare and synthesize the results across studies. More studies focusing on larger datasets employing standardised methodology, such as a customisable online tool Q-Bex described in section 4.2.3, are needed to improve our understanding of the nature of crosslinguistic influence in L3 acquisition and the role language use and dominance play in this process.

## 7 Conclusion

The present study investigated crosslinguistic influence (CLI) in the acquisition of L3 English by Russian-Norwegian bilingual children in attempt to understand how previous knowledge of two typologically distant languages affects the acquisition of the language that shows structural similarities with both languages.

This thesis was guided by three primary research questions that attempted to explore (1) whether both early-acquired languages are co-activated in L3 acquisition; (2) whether influence can be both facilitative and non-facilitative influence, and (3) what role heritage language use plays in crosslinguistic influence from Russian into English.

In line with the Linguistic Proximity Model (Westergaard et al., 2017), we hypothesized that L3 acquisition is a step-by-step acquisition process, in which both early-acquired languages are co-activated based on structural similarity with the L3 and can have both facilitative and non-facilitative effect on the development of a new language. Moreover, based on the recent research findings (Lloyd-Smith et al., 2017, 2019, 2020) we suggested that CLI from Russian, a non-dominant language of the bilinguals participating in this study, can be predicted by the amount of Russian language use, operationalized as the ‘HL Use Score’ in this study.

In order to investigate the research questions posed in this thesis, we administrated an acceptability judgment task designed to test 10 different sub-conditions targeting the acquisition of articles, subject-verb agreement, and word order that represent the areas of (mis)match between the languages under discussion. Following the principles of a subtractive language group design (Westergaard et al, 2023), the performance of Norwegian-Russian bilingual children ( $n = 19$ ) was compared to two control groups – L1 Norwegian ( $n = 20$ ) and L1 Russian ( $n = 106$ ) learners of English.

The results of the current study show that the performance of the bilingual speakers differs from their monolingual peers implying that CLI comes from both previously learned languages. Moreover, since this study documented CLI into English from both typologically close Norwegian and typologically distant Russian, it appears that structural similarities between the languages are more important than overall typological primacy, at least at the developmental stages of L3 acquisition.



Following the assumptions of the LPM, we predicted that the bilinguals would perform in between the two control groups due to simultaneous facilitative and non-facilitative influence from Russian and Norwegian. This prediction was partially borne out as we observed the in-between behavior in the Articles condition which suggest that both facilitative and non-facilitative influence is possible in L3/Ln acquisition.

Although this study reported evidence of CLI in different linguistic properties, it is worth mentioning that we observed varying developmental trajectories in the tested conditions: while in syntactic conditions targeting Topic and Adv-V word order mean accuracy was relatively high in all three groups, subject-verb agreement and genericity turned out to be significantly more challenging for all learners, and, as the result, we have not observed noticeable differences between the groups in these conditions. These findings indicate that accuracy of the participants' judgements was affected not only by their previous linguistic knowledge but also by salience and complexity of a particular linguistic property.

Moreover, this study sheds light on the role of heritage language (HL) use in third language acquisition. Despite several limitations that have been outlined earlier in this paper, we have been able to find a weak but positive effect of HL use in the condition testing subject-verb agreement with plural subjects. This finding suggests that even a non-dominant language can still have an impact on the acquisition of the L3.

Overall, the findings of the current study are best captured by the Linguistic Proximity model (Westergaard et al., 2017) and Scalpel Model (Slabakova, 2017) which allow for simultaneous influence of both early-acquired languages and predict both facilitative and non-facilitative influence in L3 acquisition. The results of this study indicate that while structural similarity plays a significant role in L3 acquisition, it is not the only predictor of cross-linguistic influence. Other factors, including linguistic complexity, salience, language dominance and use, also affect the acquisition of a new language. It is important to recognize that language learning is a complex process that is influenced by learners' previous linguistic experience that is unique and can hardly be generalised.

To address the multifaceted nature of cross-linguistic influence, future studies need to take into consideration various intra-linguistic (e.g., salience, linguistic property complexity) and extra-linguistic factors (e.g., proficiency, language use and dominance) that might affect

crosslinguistic influence. By incorporating these factors into research designs, we can gain a deeper understanding of the intricate dynamics involved in L3/Ln acquisition.

### **Limitations and directions for further research**

It is important to acknowledge that this study has several limitations that may affect the generalizability and interpretation of the findings. The main limitation of this study revolves around the variance in the dataset which is partially explained by the difficulties encountered in the process of recruiting the participants in Norway.

Firstly, the dataset size poses a limitation to the study. The Russian monolingual control group had the largest sample size with 106 participants, while the Norwegian monolingual and bilingual groups had smaller sample sizes of 20 and 19 students, respectively. Moreover, the participants in the Norwegian dataset completed only one variant of the AJT test, while both versions of the AJT were distributed to the L1 Rus and bilingual groups. The imbalance in sample sizes may have impacted the statistical power of the analysis, meaning that one should be cautious when generalizing the findings beyond the specific sample used in this study.

Secondly, the lack of matched proficiency levels across the groups is another significant shortcoming. The Russian monolingual control group exhibited a lower proficiency score compared to the Norwegian monolingual group and the bilinguals. The linguistic reality of Norway and Russia is that age-matched students will rarely have the same proficiency in English. Even though, we have tested students from the school specializing in in-depth study of English language and included the participants from the grade higher than those in the Norwegian dataset, we were not able to tackle this issue. There is a chance that if there were no big difference in proficiency level across the groups, the statistical models might have had more power to show significant effects of the conditions and groups.

To mitigate the limitations discussed above and enhance the validity and generalizability of the results, future studies in this area should consider employing larger and more balanced sample sizes. Any future studies planning to focus on the language pairs like Russian-Norwegian should be aware of the potential proficiency related issues and carefully approach the recruitment of the participants.

By acknowledging these limitations, future research can build upon this study's findings and address these shortcomings to provide a more comprehensive understanding of the relationship between previously acquired languages in the L3/Ln acquisition and the role that language dominance and use play in this process.

## Works cited

- Anderson, J., Mak, L., Keyvani-Chahi, A., & Bialystok, E. (2018). The Language and Social Background Questionnaire: Assessing Degree of Bilingualism in a Diverse Population. *Behavioural Research Methods*, 50(1), 250–263.
- Anderssen, M., Lundquist, B. and Westergaard, M. (2018) “Cross-linguistic similarities and differences in bilingual acquisition and attrition: Possessives and double definiteness in Norwegian heritage language.”
- Bardel C., Sánchez L (2017) The L2 status factor hypothesis revisited: The role of metalinguistic knowledge, working memory, attention and noticing in third language learning. In: Angelovska T, Hahn A (eds) *L3 syntactic transfer: Models, new developments and implications*. Amsterdam: John Benjamins, pp. 85–102.
- Bardel C., Falk Y (2007) The role of the second language in third language acquisition: The case of Germanic syntax. *Second Language Research* 23: 459–84.
- Bayona P. (2009) The acquisition of Spanish middle and impersonal passives. In: Leung YI (ed.) *Third language acquisition and Universal Grammar*. Bristol: Multilingual Matters, pp. 1–29.
- Berends S., Schaeffer J., Sleeman P. (2017) Cross-linguistic influence in adult second language learners: Dutch quantitative pronoun constructions. In: LaMendola M, Scott J (eds) *Proceedings of the 41st annual Boston University Conference on Language Development*. Boston, MA: Cascadilla Proceedings Project, pp. 74–87.
- Berkes, É. and Flynn, S. 2012, ‘Further evidence in support of the Cumulative-Enhancement Model: CP structure development’, in Amaro, J. Cabrelli, Flynn, S. and Rothman, J. (eds), *Third Language Acquisition in Adulthood*, pp. 143–164. Philadelphia and Amsterdam: John Benjamins
- Bohnacker, U. (2006). When Swedes begin to learn German: from V2 to V2. *Second Language Research*, 22(4), 443–486.
- Borthen, K. (2003) Norwegian bare singulars. Ph.D thesis. Trondheim: Norwegian University of Science and Technology, Department of Language and Communication Studies.

- Cho, J. and Slabakova, R. (2014) “Interpreting definiteness in a second language without articles: The case of L2 Russian,” *Second language research*, 30(2), pp. 159–190.
- Cummins, George M. III (1998). Definiteness in Czech. *Studies in Language* 22(3), 567–596
- De Cat, C., Kaščelan, D., Prévost, P., Serratrice, L., Tuller, L., & Unsworth, S. (2022). *Quantifying Bilingual EXperience (Q-BEx): questionnaire manual and documentation*.
- Ekiert, M. (2010). Articles as expressions of definiteness in L2 English of Slavic speakers. Doctoral dissertation, Teachers College, Columbia University, NY.
- Falk Y, Bardel C (2011) Object pronouns in German L3 syntax: Evidence for the L2 status factor. *Second Language Research* 27: 59–82.
- Fallah, N., Jabbari, A. A., & Fazilatfar, A. M. (2016). Source(s) of syntactic CLI: The case of L3 acquisition of English possessives by Mazanderani-Persian bilinguals. *Second Language Research*, 32, 225–245.
- Fallah, N., & Jabbari, A. (2018). L3 acquisition of English attributive adjectives. *Linguistic Approaches to Bilingualism*, 8(2), 193-216.
- Faarlund, J. T., Lie, S., & Vannebo, K. I. (1997). Norsk referansegrammatikk (pp. XXXI, 1223). Universitetsforl.
- Flynn, S., Foley, C., & Vinnitskaya, I. (2004). The Cumulative-Enhancement Model for Language Acquisition: Comparing Adults' and Children's Patterns of Development in First, Second and Third Language Acquisition of Relative Clauses. *International Journal of Multilingualism*, 1(1), 3-16.
- Gertken, L. M., Amengual, M., & Birdsong, D. (2014). Assessing language dominance with the Bilingual Language Profile. In *Measuring L2 Proficiency: Perspectives from SLA* (pp. 208-225). Channel View Publications.
- Jensen, I. (2016). The Bottleneck Hypothesis in L2 Acquisition: Norwegian L1 Speakers' Knowledge of Syntax and Morphology in English L2.

- Jensen, I., Mitrofanova, N., Anderssen, M., Rodina, Y., Slabakova, R., & Westergaard, M. (2021). Crosslinguistic influence in L3 acquisition across linguistic modules. *International Journal of Multilingualism, Ahead-of-print*(Ahead-of-print), 1-18.
- Jensen, I. (2022). Crosslinguistic Influence in Third Language Acquisition. UiT Norges arktiske universitet Fakultet for humaniora, samfunnsvitenskap og lærerutdanning.
- Jin F (2009) Third language acquisition of Norwegian objects: Interlanguage transfer or L1 influence? In: Leung YK-I (ed) *Third language acquisition and Universal Grammar*. Bristol: Multilingual Matters, pp. 144–61.
- Hermas A. (2010) Language acquisition as computational resetting: verb movement in L3 initial state. *International Journal of Multilingualism* 7: 202–24.
- Hermas A. (2015) The categorization of the relative complementizer phrase in third-language English: A feature re-assembly account. *International Journal of Bilingualism* 19: 587–607.
- Hermas, A. (2020). Genericity in third language English: Acquisition pattern and transfer in ultimate attainment. *The International Journal of Bilingualism : Cross-Disciplinary, Cross-Linguistic Studies of Language Behavior*, 24(2), 266–288.
- Ionin, T. (2003). Article semantics in second language acquisition. Department of Linguistics, MIT.
- Ionin, T. (2006). THIS IS DEFINITELY SPECIFIC: SPECIFICITY AND DEFINITENESS IN ARTICLE SYSTEMS. *Natural Language Semantics*, 14(2), 175–234.
- Ionin, T., Montrul, S., & Santos, H. (2011). An experimental investigation of the expression of genericity in English, Spanish and Brazilian Portuguese. *Lingua*, 121(5), 963–985. <https://doi.org/10.1016/j.lingua.2010.12.008>
- Kaščelan, D., Prévost, P., Serratrice, L., Tuller, L., Unsworth, S., & De Cat, C. (2022). A review of questionnaires quantifying bilingual experience in children: Do they document the same constructs? *Bilingualism* (Cambridge, England), 25(1), 29–41.

- Kupisch, T., Snape, N., & Stangen, I. (2013). Foreign language acquisition in heritage speakers: The acquisition of articles in L3-English by German-Turkish bilinguals. In J. Duarte, & I. Gogolin (Eds.), *Linguistic Super-diversity in Urban Areas: Research Approaches*, 99–122. Amsterdam: Benjamins.
- Kulundary V., Gabriele A. (2012). “Examining the role of L2 syntactic development in L3 acquisition,” in *Third Language Acquisition in Adulthood* eds Cabrelli Amaro J., Flynn S., Rothman J. (Amsterdam: John Benjamins; ) 195–222.
- Kurek, A. (2017). Hvordan skildres generisitet i norsk faglitteratur? Adam Mickiewicz University in Poznań, *Folia Scandinavica* 22(1)
- Krifka, Manfred ; Pelletier, Francis Jeffrey ; Carlson, Gregory ; ter Meulen, Alice ; Chierchia, Gennaro & Link, Godehard (1995). Genericity: An Introduction. In Greg N. Carlson & Francis Jeffrey Pelletier (eds.), *The Generic Book*. University of Chicago Press. pp. 1--124.
- Lanza, E. (2004). *Language mixing in infant bilingualism: A sociolinguistic perspective*. Oxford: Oxford University Press.
- Leung YI (2003) Failed features versus full transfer full access in the acquisition of a third language: Evidence from tense and agreement. In: Liceras JM (ed.) *Proceedings of the 6th Generative Approaches to Second Language Acquisition Conference*. Somerville, MA: Cascadilla Press, pp. 199–207.
- Leung YI (2005) L2 vs. L3 initial state: A comparative study of the acquisition of French DPs by Vietnamese monolinguals and Cantonese–English bilinguals. *Bilingualism: Language and Cognition* 8: 39–61.
- Lloyd-Smith, A., H. Gyllstad, and T. Kupisch. 2017. “Transfer Into L3 English. Global Accent in German-dominant Heritage Speakers of Turkish.” *Linguistic Approaches to Bilingualism* 2 (7): 131–162.
- Lloyd-Smith, A., Einfeldt, M., Kupisch, T. (2019). Italian-German bilinguals: The effects of HL use on accent in the early-acquired languages. *International Journal of Multilingualism*.

- Lloyd-Smith, A., Einfeldt, M., & Kupisch, T. (2020). Italian-German bilinguals: The effects of heritage language use on accent in early-acquired languages. *International Journal of Bilingualism*, 24(2), 289–304.
- Lloyd-Smith, A., Gyllstad, H., Kupisch, T., & Quaglia, S. (2021). Heritage language proficiency does not predict syntactic CLI into L3 English. *International Journal of Bilingual Education and Bilingualism*, 24(3), 435-451.
- Lorenz, E., Feindt, K., Rahbari, S., Siemund, P. (2022). The Influence of Extralinguistic Variables on Cross-Linguistic Influence in Contexts of Bilingual Heritage Speakers: A Summary of Topical Research Findings. In: Brandt, H., Krause, M., Usanova, I. (eds) *Language Development in Diverse Settings*. Edition ZfE, vol 11. Springer VS, Wiesbaden.
- Marian, V., Blumenfeld, H., & Kaushanskaya, M. (2007). The Language Experience and Proficiency Questionnaire (LEAP-Q): Assessing language profiles in bilinguals and multilinguals. *Journal of Speech, Language, and Hearing Research*, 50, 940–67.
- Mashburn, A. J., Justice, L. M., Downer, J. T., & Pianta, R. C. (2009). Peer Effects on Children’s Language Achievement during Pre-Kindergarten. *Child Development*, 80(3), 686–702.
- Mathiassen, T. (1996). (2nd ed.). *Russisk grammatikk*. Oslo: Universitetsforlaget
- McDonald, J. L. (2000). Grammaticality judgments in a second language: Influences of age of acquisition and native language. *Applied Psycholinguistics*, 21(3), 395-423.
- McDonald, J. L. (2006). Beyond the critical period: Processing-based explanations for poor grammaticality judgment performance by late second language learners. *Journal of Memory and Language*, 55(3), 381-401.
- Na Ranong S, Leung Y-KI (2009) Null objects in L1 Thai – L2 English – L3 Chinese: An empirical take on a theoretical problem. In: Leung Y-KI (ed.) *Third language acquisition and Universal Grammar*. Bristol: Multilingual Matters, pp. 162–91.
- Nedoluzhko. 2013. Generic noun phrases and annotation of coreference and bridging relations in the Prague Dependency Treebank. In *Proceedings of the 7th Linguistic Annotation*



- Workshop and Interoperability with Discourse, pages 103–111, Sofia, Bulgaria. Association for Computational Linguistics.
- Nesset, T. (1999). The Realization of (In)definiteness in Russian. *Poljarnyj Vestnik*, 2, 84–109.
- Oller, D. K., Jarmulowicz, L., Pearson, B. Z., and Cobo-Lewis, A. B. (2011). “Rapid spoken language shift in early second-language learning: The role of peers and effects on the first language, *Language and Literacy Development in Bilingual Settings*, eds A. Y. Durgunoglu and C. Goldenberg (New York, NY: Guilford Press), 94–120
- Özçelik, Ö. 2013. Selectivity in L3 transfer: effects of typological and linguistic similarity in the L3 Turkish of Uzbek-Russian bilinguals. Paper presented at Generative Linguistics in the Old World 36 (GLOW 36). Lund University, Lund, Sweden
- Paradis M (2009). Declarative and procedural determinants of second languages. *Studies in bilingualism*, volume 40. Amsterdam: John Benjamins.
- Paradis, J., & Genesee, F. (1996). Syntactic Acquisition in Bilingual Children: Autonomous or Interdependent? *Studies in Second Language Acquisition*, 18(1), 1-25.
- Puig-Mayenco, E., Miller D. & Rothman J. 2018. Language dominance and transfer selection in L3 acquisition. In Jacee Cho, Michael Iverson, Tiffany Judy, Tania Leal & Elena Shimanskaya (eds.), *Meaning and structure in second language acquisition: In honor of Roumyana Slabakova*, 229–260. Amsterdam: John Benjamins.
- Puig-Mayenco, E., González Alonso, J., & Rothman, J. (2020). A systematic review of transfer studies in third language acquisition. *Second Language Research*, 36(1), 31–64.
- Puig-Mayenco, E., Rothman, J., & Tubau, S. (2022). Language dominance in the previously acquired languages modulates rate of third language (L3) development over time: A longitudinal study. *International Journal of Bilingual Education and Bilingualism*, 25(5), 1641-1664.
- Place, S., & Hoff, E. (2011). Properties of Dual Language Exposure That Influence 2-Year-Olds' Bilingual Proficiency. *Child Development*, 82(6), 1834-1849.

- Polinsky, M., & Scontras, G. (2020). Understanding heritage languages. *Bilingualism* (Cambridge, England), 23(1), 4–20.
- Rodina, Y., Kupisch, T., Meir, N., Mitrofanova, N., Urek, O., & Westergaard, M. (2020). Internal and External Factors in Heritage Language Acquisition: Evidence from Heritage Russian in Israel, Germany, Norway, Latvia and the UK. *Frontiers in Psychology*.
- Rodina, Y., & Westergaard, M. (2017). Grammatical gender in bilingual Norwegian-Russian acquisition: The role of input and transparency. *Bilingualism* (Cambridge, England), 20(1), 197-214.
- Rothman, J. (2010) On the typological economy of syntactic transfer: Word order and relative clause high/low attachment preference in L3 Brazilian Portuguese. *International Review of Applied Linguistics in Language Teaching* 48: 245–273.
- Rothman, J., & Amaro, J. C. (2010). What variables condition syntactic transfer? A look at the L3 initial state. *Second Language Research*, 26(2), 189–218. <https://doi.org/10.1177/0267658309349410>
- Rothman, J. (2011) L3 syntactic transfer selectivity and typological determinacy: The typological primacy model. *Second Language Research* 27: 107–27.
- Rothman, J. (2013) Cognitive economy, non-redundancy and typological primacy in L3 acquisition: Evidence from initial stages of L3 Romance. In: Baauw S, Dirjkonigen F, Meroni L, Pinto M (eds) *Romance languages and linguistic theory*. Amsterdam: John Benjamins, pp. 217–47.
- Rothman & Susagna Tubau. (2020). Language dominance in the previously acquired languages modulates rate of third (L3) development over time: A longitudinal study. *International Journal of Bilingual Education and Bilingualism*.
- Ramos Feijoo, J., & Garcia Mayo, M. (2021). The acquisition of relative clauses by Spanish-Basque learners of L3 English: Does dominance play a role? *International Review of Applied Linguistics in Language Teaching, IRAL, International review of applied linguistics in language teaching, IRAL*, 2021.
- Serés, D. (2020). *The expression of genericity in languages with and without articles* (Doctoral dissertation, Universitat Autònoma de Barcelona).

- Schwartz B, Sprouse R (1996) L2 cognitive states and the full transfer/full access model. *Second Language Research* 12: 40–72.
- Schwartz, M., Minkov, M., Dieser, E., Protassova, E., Moin, V., & Polinsky, M. (2015). Acquisition of Russian gender agreement by monolingual and bilingual children. *International Journal of Bilingualism*, 19(6), 726–752.
- Slabakova, R. (2008). *Meaning in the second language* (Vol. 34, Studies on language acquisition ;). Berlin: Mouton de Gruyter.
- Slabakova, R. (2013). What is easy and what is hard in second language acquisition: A generative perspective.
- Slabakova, R., & García Mayo, M. del P. (2015). The L3 Syntax-Discourse Interface. *Bilingualism (Cambridge, England)*, 18(2), 208–226.
- Skrzypek, D., Kurek-Przybilski, A., & Piotrowska, A. (2022). Expressions of genericity in Mainland Scandinavian languages. *The Journal of Comparative Germanic Linguistics*, 25(1), 43–78.
- Trenkic, D. (2009). Accounting for patterns of article omissions and substitutions in second language production. In M. P. Garcia Mayo, & R. Hawkins (Eds.), *Second language acquisition of articles: empirical findings and theoretical implications* (pp. 115-143). (*Language Acquisition and Language Disorders*; Vol. 49). John Benjamins Publishing Company.
- Truscott, J., & Sharwood Smith, M. (2019). *The Internal Context of Bilingual Processing* (Vol. 8, Bilingual processing and acquisition). Amsterdam/Philadelphia: John Benjamins Publishing Company.
- Unsworth, S. (2013). Assessing the role of current and cumulative exposure in simultaneous bilingual acquisition: The case of Dutch gender. *Bilingualism: Language and Cognition*, 16(1), 86–110
- Van Dijk, C., Van Wonderen, E., Koutamanis, E., Kootstra, G. J., Dijkstra, T., & Unsworth, S. (2021). Cross-linguistic influence in simultaneous and early sequential bilingual children: a meta-analysis. *Journal of Child Language*, 1–33.d

- Westergaard, M., Mitrofanova, N., Mykhaylyk, R., & Rodina, Y. (2016). Crosslinguistic influence in the acquisition of a third language: The Linguistic Proximity Model.
- Westergaard, M. (2021a). L3 acquisition and crosslinguistic influence as co-activation: Response to commentaries on the keynote ‘Microvariation in multilingual situations: The importance of property-by-property acquisition’. *Second Language Research*, 37(3), 501-518.
- Westergaard, M. (2021b). Microvariation in multilingual situations: The importance of property-by-property acquisition. *Second Language Research*, 37(3), 379-407.
- Westergaard, M., Mitrofanova, N., Rodina, Y., Slabakova, R. (2023). Full Transfer Potential in L3/Ln acquisition: Crosslinguistic influence as a property-by-property process. In: Cabrelli J, Chaouch-Orozco A, González Alonso J, et al. (eds) *The Cambridge handbook of third language acquisition and processing*. Cambridge: Cambridge University Press.
- Wrembel, M. (2012). Foreign accentedness in Third Language Acquisition; the case of L3 English. In: Jennifer Cabrelli Amaro – Suzanne Flynn – Jason Rothman (eds.) *Third Language Acquisition in Adulthood*. Amsterdam: John Benjamins, 281-309.

# Appendices

## Appendix A: Acceptability Judgement Task (AJT) items

### I. Articles

#### 1. Obligatory use of the definite article

[Mary took a test yesterday]. The test was difficult

[Mary took a test yesterday]. \*Test was difficult

[Jack met a pretty girl yesterday]. The girl studies linguistics.

[Jack met a pretty girl yesterday]. \*Girl studies linguistics.

[There will be no class tomorrow]. The teacher is sick.

[There will be no class tomorrow]. \*Teacher is sick.

[Susan thought that her dog was lazy]. The dog slept a lot.

[Susan thought that her dog was lazy]. \*Dog slept a lot.

[They have recently bought a new apartment]. The apartment is on the first floor.

[They have recently bought a new apartment]. \*Apartment is on the first floor.

[Katherine bought a red dress]. The colour suits her well.

[Katherine bought a red dress]. \*Colour suits her well.

#### 2. Obligatory use of the indefinite article

A teacher must be smart.

\*Teacher must be smart

I have a strange feeling.

\*I have strange feeling

Manchester is a city in England

\* Manchester is city in England

He is a famous painter.

\* He is famous painter.

John is a bright student.

\* John is bright student.

Laura is married to a student

\*Laura is married to student

#### 3. Genericity with plural NPs

Cats are independent animals

\*The cats are independent animals

|                                           |                                                 |
|-------------------------------------------|-------------------------------------------------|
| Teenagers spend a lot of money on clothes | * The teenagers spend a lot of money on clothes |
| Lions can hunt alone                      | *The lions can hunt alone                       |
| Dogs are friendly animals                 | *The dogs are friendly animals                  |
| Elephants are the largest of all mammals  | *The elephants are the largest animals          |
| Birds lay eggs                            | *The birds lay eggs                             |

#### 4. Genericity with abstract nouns

|                                        |                                             |
|----------------------------------------|---------------------------------------------|
| Life can be difficult                  | *The life can be difficult                  |
| Time will show                         | *The time will show                         |
| Many people are afraid of death        | *Many people are afraid of the death        |
| History repeats itself                 | *The history repeats itself                 |
| We believe in democracy                | *We believe in the democracy                |
| It is important to reduce unemployment | *It is important to reduce the unemployment |

## II. Subject-verb agreement (test items are taken from Jensen 2016)

### 1. SVA with local agreement, singular subjects

|                                                 |                                                 |
|-------------------------------------------------|-------------------------------------------------|
| The girl drinks a lot of water every day        | *The girl drink a lot of water every day        |
| The boy likes to go swimming in the ocean       | *The boy like to go swimming in the ocean       |
| The girl drives to work every Wednesday morning | *The girl drive to work every Wednesday morning |
| The student loves to read books about football  | *The student love to read books about football  |
| The teacher eats fish for dinner every Friday   | *The teacher eat fish for dinner every Friday   |
| The brown dog plays with the yellow football    | *The brown dog play with the yellow football    |

## 2. SVA with local agreement, plural subjects

The kids like to play in the park every weekend

\*The kids likes to play in the park every weekend

The teachers give their students a lot of homework

\*The teachers gives their students a lot homework

The cats play with the yellow and green ball

\*The cats plays with the yellow and green ball

The students sit in the park after school

\*The students sits in the park after school

The sisters love to run in the forest

\* The sisters loves to run in the forest

The brothers attend football practice every day

\*The brothers attends football practice every day

## 3. SVA with long distance agreement, singular subjects

The house with yellow and white doors looks nice

\*The house with yellow and white doors look nice

The teacher with black shoes walks to work every day

\*The teacher with black shoes walk to work every day

The boy with blue eyes seems very happy

\*The boy with blue eyes seem very happy

The girl with golden earrings takes the bus to school

\*The girl with golden earrings take the bus to school

The boy with broken arms tries to read a book

\*The boy with broken arms try to read a book

The book about fast cars makes the girl happy

\*The book about fast cars make the girl happy

## 4. SVA with long distance agreement, plural subjects

The boys in the black car look very scary

\*The boys in the black car looks very scary

The parents with the nice car talk to their kids

\*The parents with the nice car talks to their kids

The girls with short blonde hair like to read

\* The girls with short blonde hair likes to read

The cats with long white fur drink milk every day

\*The cats with long white fur drinks milk every day

Those tourists with the heavy suitcase seem tired

\*Those tourists with the heavy suitcase seems tired

The kids with the red bike play in the garden

\*The kids with the red bike plays in the garden

### **III. Fillers:**

#### **1. Adverb-verb WO**

Mary never eats breakfast.

\*Mary eats never breakfast

Susan always drinks coffee in the morning.

\*Susan drinks always coffee in the morning.

We rarely see our grandparents.

\*We see rarely our grandparents.

We usually eat porridge for breakfast

\*We eat usually porridge for breakfast

Patrick often plays computer games.

\*Patrick plays often computer games.

They regularly go to church

\*They go regularly to church

#### **2. Topicalised sentences (non-subject initial declaratives)**

Once a month they go to the cinema

\*Once a month go they to the cinema

Last week they went to the cinema

\*Last week went they to the cinema

Every week Julia cleans her room

\*Every week cleans Julia her room

Last year they worked from home

\*Last year worked they from home

Every Friday we eat pizza for dinner

\*Every Friday eat we pizza for dinner

Yesterday I talked with my best friend

\*Yesterday talked I with my best friend



## Appendix B: The Standardized Oxford Proficiency test

**Part 1:** Please complete the sentences by selecting one of the answers. There is only ONE correct answer. You have 10 minutes to complete this part.

1. Water \_\_\_\_\_ at a temperature of 100° C.  
a) is to boil            b) is boiling            c) boils
2. In some countries \_\_\_\_\_ very hot all the time.  
a) there is            b) is            c) it is
3. In cold countries people wear thick clothes \_\_\_\_\_ warm.  
a) for keeping            b) to keep            c) for to keep
4. In England people are always talking about \_\_\_\_\_.  
a) a weather            b) the weather            c) weather
5. In some places \_\_\_\_\_ almost every day.  
a) it rains            b) there rains            c) it raining
6. In deserts there isn't \_\_\_\_\_ grass.  
a) the            b) some            c) any
7. Places near the Equator have \_\_\_\_\_ weather even in the cold season.  
a) a warm            b) the warm            c) warm
8. In England \_\_\_\_\_ time of year is usually from December to February.  
a) coldest            b) the coldest            c) colder
9. \_\_\_\_\_ people don't know what it's like in other countries.  
a) The most            b) Most of            c) Most
10. Very \_\_\_\_\_ people can travel abroad.  
a) less            b) little            c) few

11. Mohammed Ali \_\_\_\_\_ his first world title fight in 1960.

- a) has won            b) won                c) is winning

12. After he \_\_\_\_\_ an Olympic gold medal, he became a professional boxer.

- a) had won            b) have won            c) was winning

13. His religious beliefs \_\_\_\_\_ change his name when he became a champion.

- a) have made him    b) made him to        c) made him

14. If he \_\_\_\_\_ lost his first fight with Sonny Liston, no one would have been surprised.

- a) has                 b) would have        c) had

15. He has traveled a lot \_\_\_\_\_ as a boxer and as a world-famous personality.

- a) both                b) and                 c) or

16. He is very well known \_\_\_\_\_ the world.

- a) all in                b) all over             c) in all

17. Many people \_\_\_\_\_ he was the greatest boxer of all time.

- a) is believing        b) are believing        c) believe

18. To be the best \_\_\_\_\_ the world is not easy.

- a) from                b) in                    c) of

19. Like any top sportsman, Ali \_\_\_\_\_ train very hard.

- a) had to              b) must                c) should

20. Even though he has now lost his title, people \_\_\_\_\_ always remember him as a champion.

- a) would              b) will                 c) did

**Part 2:** Underline the correct answer to form the continuous story. There is only ONE correct answer. You have 10 minutes to complete this part.

21. The history of **aeroplane / the aeroplane / an aeroplane** is
22. **quite a / a quite / quite** short one. For many centuries men
23. **are trying / try / had tried** to fly, but with
24. **little / few / a little** success. In the 19th century a few people
25. succeeded **to fly / in flying / into flying** in balloons. But it wasn't until
26. the beginning of **this / next / that** century that anybody
27. **were / is / was** able to fly in a machine
28. **who / which / what** was heavier than air, in other words, in
29. **who / which / what** we now call a 'plane'. The first people to achieve
30. 'powered flight' were the Wright brothers. **His / Their / Theirs** was the machine which was the forerunner of the Jumbo jets
31. and supersonic airliners that are **such / such a / so** common
32. sight today. They **could / should / couldn't** hardly have imagined that
33. in 1969 **not much / not many / no much** more than half a century later,
34. a man **will be / had been / would be** landed on the moon.
35. Already **a man / man / the man** is taking the first steps towards the stars.
36. Although space satellites have existed **since / during / for** less
37. than forty years, we are now dependent **from / of / on** them for all
38. kinds of **informations / information / an information**. Not only
39. **are they / they are / there are** being used for scientific research in
40. space, but also to see what kind of weather **is coming / comes / coming**.

## Appendix C: The Language Background Questionnaire (for monolinguals)

**Your name:**

**Age:**

**Grade:**

Is Norwegian your only native language? Yes / No

What language(s) do you speak with the members of your family?

---

---

Have you ever lived in a country/place where Norwegian is **not** the dominant communicating language for a period longer than **1 year**? Yes  No

If yes, please indicate where and for how long? \_\_\_\_\_

---

# Appendix D: The Language Background Questionnaire (for bilinguals)

Your name:

Your age:

Please list **all the languages** that you **speak and/or understand** - no matter how well or how often. \_\_\_\_\_

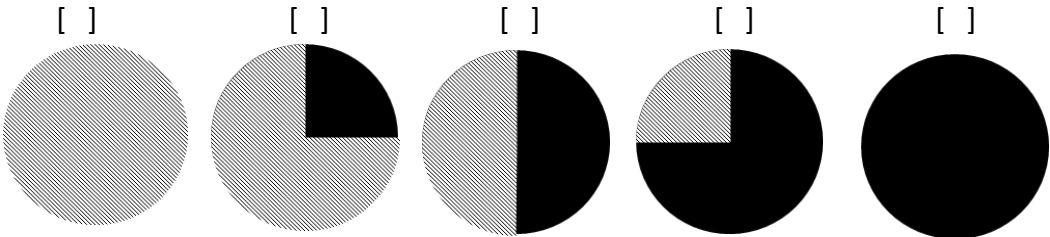
Which language do you use when talking to your family members? *(Please tick the appropriate box)*

|                                     | Norwegian only           | mostly Norwegian         | 50/50                    | mostly Russian           | Russian only             |
|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Mother                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Father                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Siblings                            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Maternal grandparents               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Paternal grandparents               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aunts and Uncles<br>(mother side)   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aunts and Uncles<br>(father's side) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |


In the next set of questions, we would like to learn what languages you use to communicate with your main caregivers. A main caregiver is a parent, a grandparent, or someone who takes care of you most of the time. Please select **up to two main caregivers** that you have and write what's your relationship to this person in the brackets, e.g., mother, father, sister, grandmother, etc. Tick  the appropriate box that describes your situation the best.

**At home**, how often does [**Caregiver 1:** \_\_\_\_\_] use each language when speaking to you? Think about a typical week in the current year.

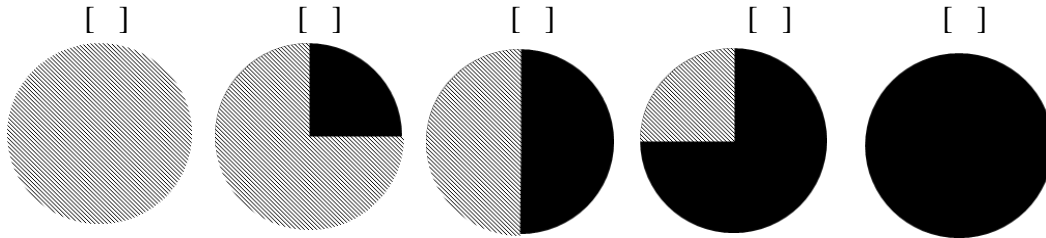
 Norwegian  Russian



**At home, how often do you use each language when speaking to [Caregiver 1: \_\_\_\_\_]?** Think about a typical week in the current year.

 Norwegian

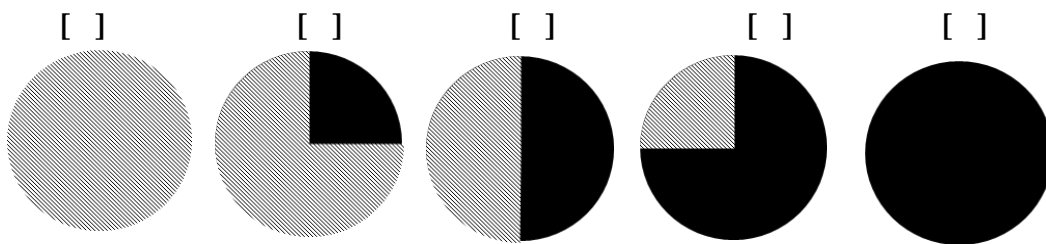
 Russian



**At home, how often does [Caregiver 2: \_\_\_\_\_] use each language when speaking to you?** Think about a typical week in the current year.

 Norwegian

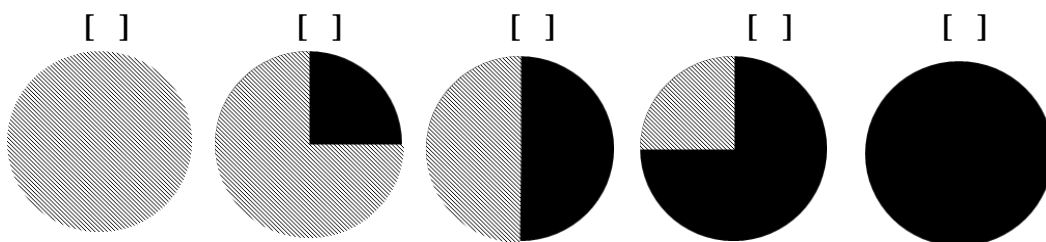
 Russian



**At home, how often do you use each language when speaking to [Caregiver 2: \_\_\_\_\_]?** Think about a typical week in the current year.

 Norwegian

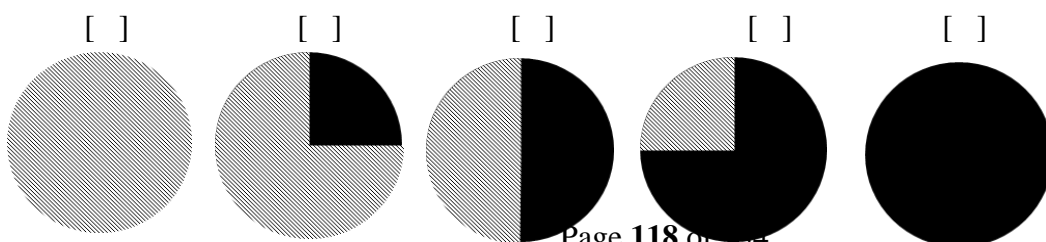
 Russian




**At regular school, how often do friends use each language when speaking to you?**


 Norwegian

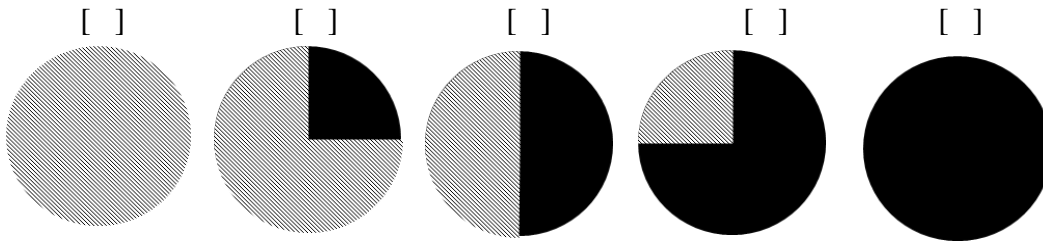
 Russian




At regular school, how often do you use each language when speaking to **friends**?

 Norwegian

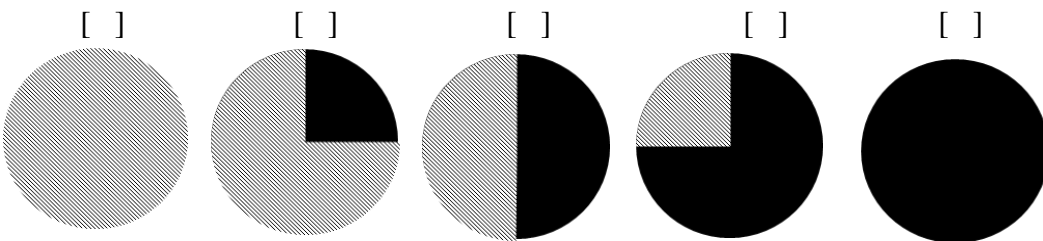
 Russian




When you are with **friends** in **the local community** (not at school and not at home), how often do these friends use each language when speaking to you?

 Norwegian

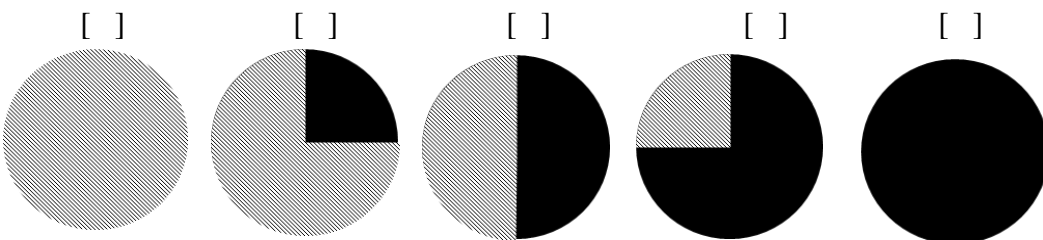
 Russian




When you are with **friends** in **the local community** (not at school and not at home), how often do you use each language when speaking to them?

 Norwegian

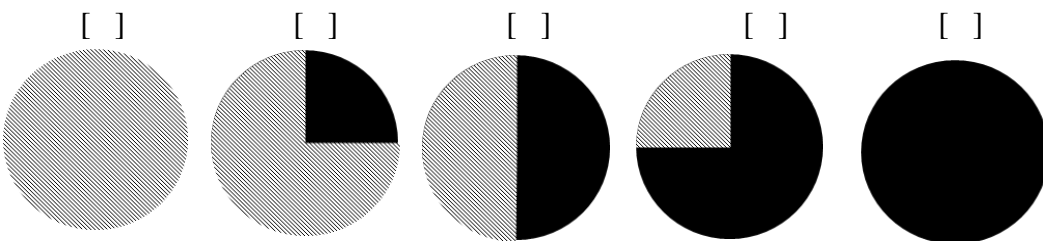
 Russian




When you are with **adults** in **the local community** (not at school and not at home), how often do these adults use each language when speaking to you?

 Norwegian

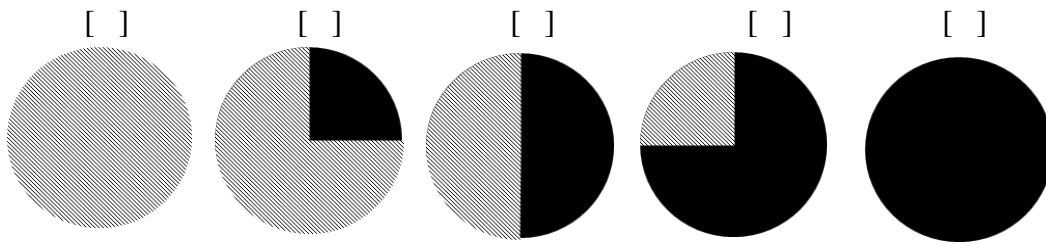
 Russian



When you are with **adults in the local community** (not at school and not at home), how often do you use each language when speaking to them?

 Norwegian

 Russian



How old were you when **people** started talking to you in **Norsk (Norwegian)**?

Age \_\_\_\_\_

How old were you when **people** started talking to you in **Русский (Russian)**?

Age \_\_\_\_\_

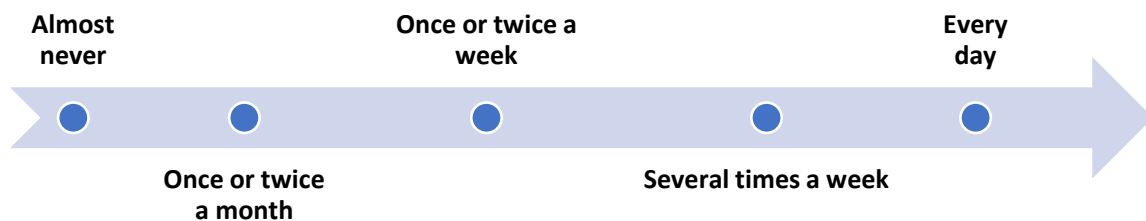
Where did **people** first start talking to you in **Norsk (Norwegian)**?

- a. at home      b. at day care      c. at school      d. other

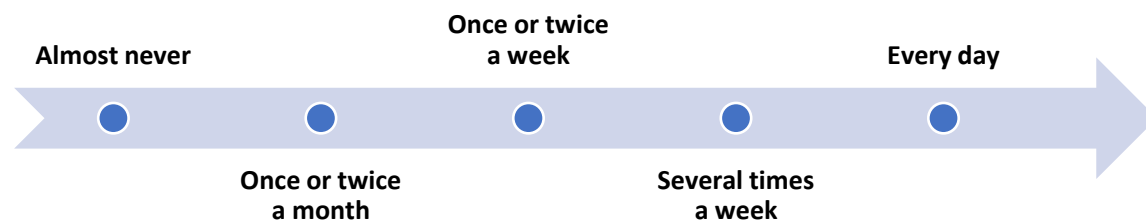
Where did **people** first start talking to you in **Русский (Russian)**?

- a. at home      b. at day care      c. at school      d. other

How often do you **read** in **Norsk (Norwegian)** or do other people **read to** you in **Norsk (Norwegian)**?

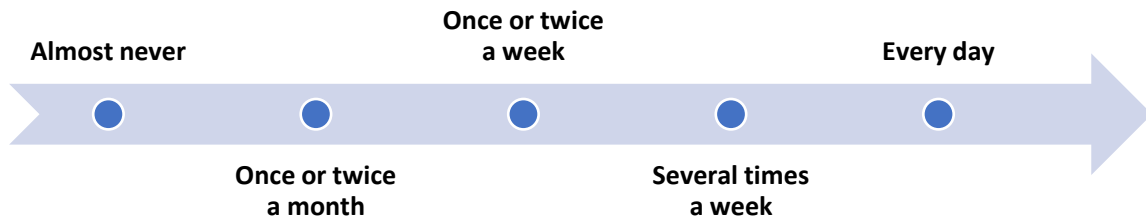


How often do you **read** in **Русский (Russian)** or do other people **read to** you in **Русский (Russian)**?

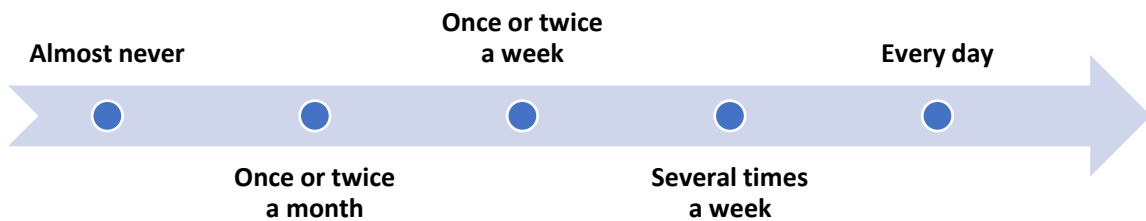




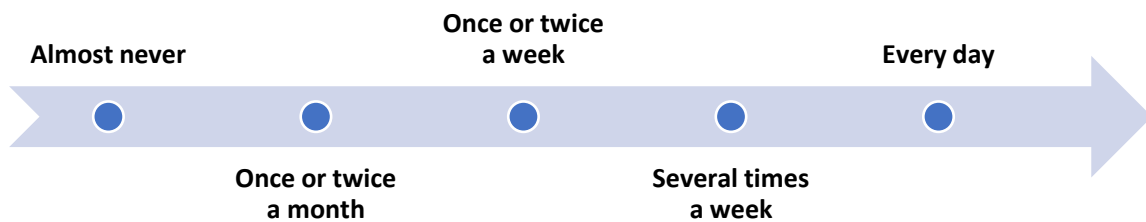
How often do you **write in Norsk (Norwegian)**?



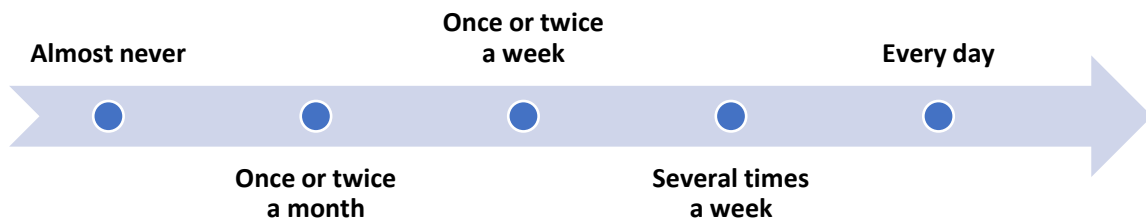
How often do you **write in Русский (Russian)**?



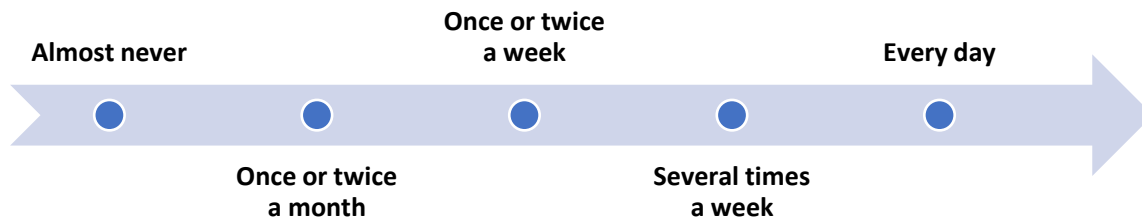
**Outside of regular school**, how often do you have **Русский (Russian)** lessons (which include reading/writing)



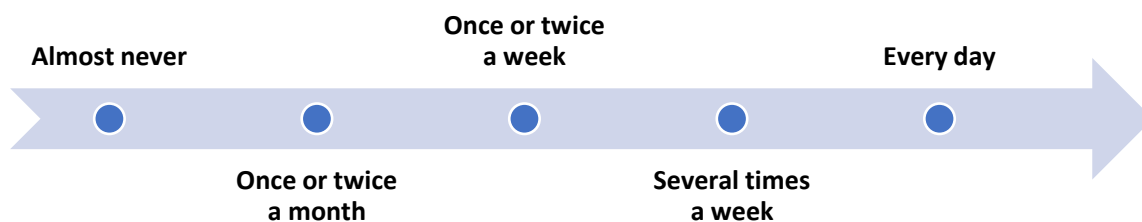
How often do you do any **computer/technology-related** activities **in Norsk (Norwegian)**?  
For example: TV, radio, music, films, websites, games, tablets, laptops, computers, phones, apps, etc.



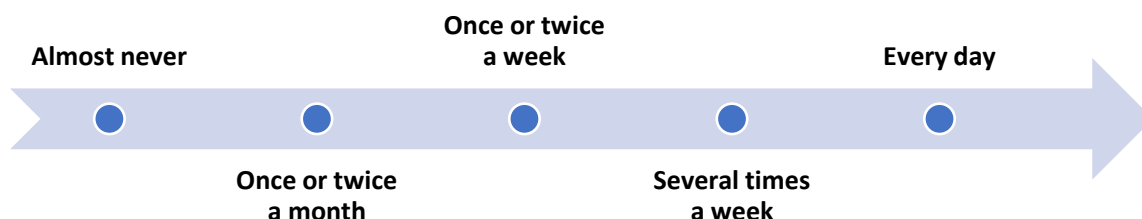
How often do you do any **computer/technology-related** activities **in Русский (Russian)**?  
For example: TV, radio, music, films, websites, games, tablets, laptops, computers, phones, apps, etc.



**Outside of regular school**, how often do you participate in any organised activities in **Norsk (Norwegian)**? For example: sports, music, cultural activities, religious practice, etc.



**Outside of regular school**, how often do you participate in any organised activities in **Русский (Russian)**? For example: sports, music, cultural activities, religious practice, etc.



How many people speak in **Norsk (Norwegian)** to you **at least once a week**? Think about caregivers, brothers and/or sisters, other people in your home, family outside your home, friends/playmates, teachers, other important people in your life.

- 0                       1-2                       3-5                       6-10                       more than 10

How many people speak in **Русский (Russian)** to you **at least once a week**? Think about caregivers, brothers and/or sisters, other people in your home, family outside your home, friends/playmates, teachers, other important people in your life.

- 0                       1-2                       3-5                       6-10                       more than 10

Generally, do **people in your home** including yourself have a preference for which language you use together? Underline the relevant language.

- We (almost) always prefer using Russian / Norwegian
- We often prefer using Russian / Norwegian
- We have no preference
- I don't know

**Trips to Russian-speaking countries**

Have you ever been to a country where Russian is spoken as a dominant language?

If **yes**, please answer the questions below:

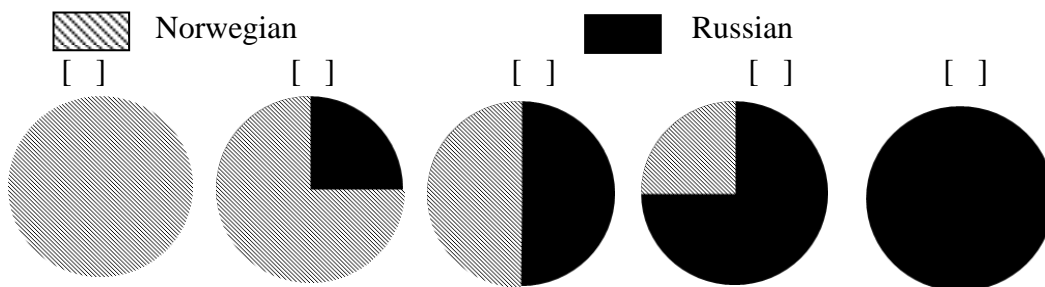
I was there for **the first time** at the age of \_\_\_\_\_ years.

How often/regularly have you been there **in the last 10 years**?

Approx. \_\_\_\_\_ **times per year**.

My **longest stay** last for \_\_\_\_\_ months.

What language do you speak when visiting this country?



How well can you do the things bellow for your age? Tick  the appropriate box.

|                   | <b>Norwegian</b>                       |                                        | <b>Russian</b>                         |                                        |
|-------------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|
| <b>Speak</b>      | <input type="checkbox"/> hardly at all | <input type="checkbox"/> not very well | <input type="checkbox"/> hardly at all | <input type="checkbox"/> not very well |
|                   | <input type="checkbox"/> pretty well   | <input type="checkbox"/> very well     | <input type="checkbox"/> pretty well   | <input type="checkbox"/> very well     |
| <b>Understand</b> | <input type="checkbox"/> hardly at all | <input type="checkbox"/> not very well | <input type="checkbox"/> hardly at all | <input type="checkbox"/> not very well |
|                   | <input type="checkbox"/> pretty well   | <input type="checkbox"/> very well     | <input type="checkbox"/> pretty well   | <input type="checkbox"/> very well     |
| <b>Read</b>       | <input type="checkbox"/> hardly at all | <input type="checkbox"/> not very well | <input type="checkbox"/> hardly at all | <input type="checkbox"/> not very well |
|                   | <input type="checkbox"/> pretty well   | <input type="checkbox"/> very well     | <input type="checkbox"/> pretty well   | <input type="checkbox"/> very well     |
| <b>Write</b>      | <input type="checkbox"/> hardly at all | <input type="checkbox"/> not very well | <input type="checkbox"/> hardly at all | <input type="checkbox"/> not very well |
|                   | <input type="checkbox"/> pretty well   | <input type="checkbox"/> very well     | <input type="checkbox"/> pretty well   | <input type="checkbox"/> very well     |

## Appendix E: Information used for the HL Use

| HL use score | Biling type | Mother HL use | L with Mother | Father HL use | HL with Father | HL with grand-parents | HL with siblings | HL instruction | Contact with HL | HL with peers | Activities in HL | HL speakers around | Visits to HL country | proficiency |     |
|--------------|-------------|---------------|---------------|---------------|----------------|-----------------------|------------------|----------------|-----------------|---------------|------------------|--------------------|----------------------|-------------|-----|
| NR1          | 14          | 2             | 1             | 0,75          | 1              | 0,75                  | 1                | 0              | 1               | 2             | 0                | 1                  | 0,5                  | 1           | 2   |
| NR2          | 14,5        | 0             | 1             | 0,75          | 1              | 0,75                  | 1                | N/A            | 1               | 2             | 1                | 1                  | 1                    | 1,5         | 2,5 |
| NR3          | 9,25        | 0             | 0,75          | 0             | 0              | 0                     | 0,5              | 0,25           | 1               | 2             | 0                | 1                  | 0,5                  | 1           | 1,5 |
| NR4          | 14          | 2             | 0,75          | 0,25          | 0,25           | 0,5                   | 0,5              | 0,5            | 1               | 2             | 0                | 1                  | 0,5                  | 1,5         | 3   |
| NR5          | 8           | 0             | 0,5           | 0             | 0              | 0,5                   | N/A              | 1              | 1               | 2             | 0                | 0                  | 0,5                  | 1           | 2   |
| NR6          | 14          | 0             | 0,75          | 0,75          | 0,75           | 1                     | 0,5              | 1              | 1               | 2             | 0                | 1                  | 1,5                  | 1           | 3   |
| NR7          | 13,75       | 0             | 1             | 0,75          | 0,75           | 1                     | 0,25             | 1              | 1               | 2             | 1                | 1                  | 1,5                  | 0,5         | 2   |
| NR8          | 15,25       | 2             | 1             | 1             | 1              | 1                     | 0,75             | 1              | 1               | 2             | 0                | 1                  | 0,5                  | 1,5         | 1,5 |
| NR9          | 17          | 0             | 1             | 1             | 1              | 1                     | 1                | 1              | 1               | 2             | 1                | 1                  | 1,5                  | 1,5         | 3   |
| NR11         | 12,75       | 0             | 1             | 1             | 1              | 0,75                  | 1                | 0,5            | 1               | 2             | 0                | 1                  | 1,5                  | 0           | 2   |
| NR12         | 12,75       | 0             | 1             | 0,75          | 0,75           | 0,75                  | 1                | 0,5            | 1               | 2             | 0                | 1                  | 1                    | 1           | 2   |
| NR13         | 17          | 2             | 1             | 1             | 1              | 1                     | 0,5              | 1              | 1               | 2             | 1                | 1                  | 0,5                  | 1,5         | 2,5 |
| NR14         | 14,25       | 2             | 1             | 0,5           | 0,75           | 0,5                   | 1                | 0              | 1               | 2             | 1                | 1                  | 1                    | 0           | 2,5 |
| NR15         | 13          | 2             | 0,75          | 0,75          | 0,5            | 0,75                  | 1                | 0,75           | 1               | 2             | 0                | 1                  | 1                    | 0           | 1,5 |
| NR16         | 12,5        | 0             | 1             | 1             | 1              | 1                     | 1                | 1              | 1               | 2             | 0                | 1                  | 0,5                  | 0,5         | 1,5 |
| NR17         | 17          | 0             | 1             | 1             | 1              | 1                     | 1                | 1              | 1               | 2             | 1                | 1                  | 1,5                  | 1,5         | 3   |
| NR18         | 19          | 2             | 1             | 1             | 1              | 1                     | 1                | 1              | 1               | 2             | 1                | 1                  | 1,5                  | 1,5         | 3   |
| NR19         | 12          | 0             | 0,75          | 0,75          | 0              | 0                     | 1                | 0,5            | 1               | 2             | 1                | 1                  | 0,5                  | 1           | 2,5 |
| NR20         | 11          | 0             | 0,75          | 0,75          | 0              | 0                     | 0,5              | 0              | 1               | 2             | 1                | 1                  | 1,5                  | 0           | 2,5 |

## **Appendix F: Information Letter and Consent Form**

### **Vil du delta i forskningsprosjektet**

#### **“Crosslinguistic influence in L3 acquisition of English”?**

Dette er en forespørsel til barnet ditt/dere om å delta i et forskningsprosjekt knyttet til min mastergradsoppgave ved UiT – Norges arktiske universitet. Formålet er å se nærmere på hvordan barn med ulike morsmål tilegner seg engelsk. I dette skrivet gir vi deg informasjon om målene for prosjektet og hva deltakelse vil innebære for deg.

#### **Formål**

I dette forskningsprosjektet ønsker vi å undersøke hvordan tospråklige og enspråklige barn med ulike morsmål tilegner seg engelsk språk. Målet med prosjektet er å forstå hvordan tidligere lærte språk påvirker hvordan vi lærer det nye språket.

#### **Hvem er ansvarlig for forskningsprosjektet?**

UiT – Norges Arktiske Universitet er ansvarlig for prosjektet.

#### **Hvorfor får du spørsmål om å delta?**

Du blir bedt om å delta fordi barna dine snakker norsk som førstespråk og vi er interessert i å studere hvordan dette språket påvirker tilegnelsen av engelsk.

#### **Hva innebærer det for deg/barnet ditt å delta?**

Datainnsamlingen består av et spørreskjema om språkbakgrunn, en *Acceptability Judgement Task* (hvor elevene skal rangere setninger som gode eller dårlige), og en *English Proficiency Test*. Det tar ca. 30 minutter å gjennomføre både oppgavene og spørreskjemaet.

#### **Det er frivillig å delta**

Det er frivillig å delta i prosjektet. Selv om dere velger å delta, kan dere når som helst trekke samtykket tilbake uten å oppgi noen grunn. Alle personopplysninger vil da bli slettet. Det vil ikke ha noen negative konsekvenser for dere hvis dere ikke vil delta eller senere velger å trekke dere. Det vil ikke påvirke ditt forhold til skolen/læreren.

#### **Ditt personvern – hvordan vi oppbevarer og bruker dine opplysninger**

Vi vil bare bruke opplysningene om deg til formålene vi har fortalt om i dette skrivet. Vi behandler opplysningene konfidensielt og i samsvar med personvernregelverket. De som vil ha tilgang til dine opplysninger ved UiT er meg selv og min masterveileder. Dataene vil bli anonymisert og deltakernes navn vil ikke bli lagret.

#### **Hva skjer med opplysningene dine når vi avslutter forskningsprosjektet?**

Personopplysninger som direkte identifiserer deltakerne vil slettes ved prosjektet slutt i november, 2023. Som nevnt ovenfor vil navn på deltakere anonymiseres, slik at de eneste tilgjengelige personlige dataene vil være deltakernes alder og språk som snakkes. Disse dataene vil bli oppbevart som en del av datafilen da de er uunnværlige for forskning innen flerspråklighet. Dataene vil bli arkivert for videre forskning.

## **Dine rettigheter**

Så lenge du kan identifiseres i datamaterialet, har du rett til:

- innsyn i hvilke personopplysninger som er registrert om deg, og å få utlevert en kopi av opplysningene,
- å få rettet personopplysninger om deg,
- å få slettet personopplysninger om deg,
- å sende klage til Datatilsynet om behandlingen av dine personopplysninger.

## **Hva gir oss rett til å behandle personopplysninger om deg?**

Vi behandler opplysninger om deg basert på ditt samtykke.

På oppdrag fra UiT – Norges Arktiske Universitet har NSD – Norsk senter for forskningsdata vurdert at behandlingen av personopplysninger i dette prosjektet er i samsvar med personvernregelverket.

## **Hvor kan jeg finne ut mer?**

Hvis du har spørsmål til studien, eller ønsker å benytte deg av dine rettigheter, ta kontakt med:

- UiT The Arctic University of Norway via

Natalia Mitrofanova (veileder), på epost [natalia.mitrofanova@uit.no](mailto:natalia.mitrofanova@uit.no) eller på tlf. nr. 91162774

Anna Saraeva (student), på epost: [asa126@uit.no](mailto:asa126@uit.no)

- UiT The Arctic University of Norway via

Vårt personvernombud: Joakim Bakkevold, [personvernombud@uit.no](mailto:personvernombud@uit.no)

- NSD – Norsk senter for forskningsdata AS på epost ([personverntjenester@nsd.no](mailto:personverntjenester@nsd.no)) eller på tlf.nr. 55 58 21 17.

Med vennlig hilsen,

Natalia Mitrofanova  
(Forsker/veileder)

Anna Saraeva  
Student

## Samtykkeerklæring

Jeg har mottatt og forstått informasjon om prosjektet “Crosslinguistic influence in L3 acquisition of English” og har fått anledning til å stille spørsmål. Jeg samtykker til:

- barnet mitt å delta i Acceptability Judgement Task and English Proficiency Test;
- barnet mitt å svare spørsmål på spørreskjemaet
- at mine/våres språkvitenskapelige datamateriale (resultatene fra Acceptability Judgement test, alder, språkferdigheter og språkbakgrunn) skal lagres etter prosjektslutt for oppfølgingsstudier.

Jeg gir samtykke til at mine personopplysninger kan behandles frem til sluttdatoen for prosjektet, 1.november 2023.

-----  
(Signert av foresatte, dato)

## Appendix G: Accuracy by Grammaticality and Group (raw data analysis)

Table 14. Definite article, mean scores by group

|               | L1 Norwegian | Bilingual | L1 Russian |
|---------------|--------------|-----------|------------|
| Total         | 0.8223164    | 0.8508772 | 0.5204403  |
| Grammatical   | 0.9666667    | 0.8070175 | 0.6163522  |
| Ungrammatical | 0.6779661    | 0.8947368 | 0.4245283  |

Table 15. Indefinite article, mean scores by group

|               | L1 Norwegian | Bilingual | L1 Russian |
|---------------|--------------|-----------|------------|
| Total         | 0.7416667    | 0.8070175 | 0.5440252  |
| Grammatical   | 0.8333333    | 0.8596491 | 0.6792453  |
| Ungrammatical | 0.6500000    | 0.7543860 | 0.4088050  |

Table 16. Abstract Genericity, mean scores by group

|               | L1 Norwegian | Bilingual | L1 Russian |
|---------------|--------------|-----------|------------|
| Total         | 0.6069209    | 0.5087719 | 0.5251572  |
| Grammatical   | 0.8305085    | 0.7894737 | 0.6477987  |
| Ungrammatical | 0.3833333    | 0.2280702 | 0.4025157  |

Table 17. Genericity with plural NPs, mean scores by group

|               | L1 Norwegian | Bilingual | L1 Russian |
|---------------|--------------|-----------|------------|
| Total         | 0.6000000    | 0.5000000 | 0.5204403  |
| Grammatical   | 0.9166667    | 0.7894737 | 0.7358491  |
| Ungrammatical | 0.2833333    | 0.2105263 | 0.3050314  |



Table 18. Local agreement with singular subjects, mean scores by group

|               | L1 Norwegian | Bilingual | L1 Russian |
|---------------|--------------|-----------|------------|
| Total         | 0.6500000    | 0.6491228 | 0.5471698  |
| Grammatical   | 0.8500000    | 0.7894737 | 0.6446541  |
| Ungrammatical | 0.4500000    | 0.5087719 | 0.4496855  |

Table 19. Local agreement with plural subjects, mean scores by group

|               | L1 Norwegian | Bilingual | L1 Russian |
|---------------|--------------|-----------|------------|
| Total         | 0.5083333    | 0.5350877 | 0.5581761  |
| Grammatical   | 0.7166667    | 0.7894737 | 0.6540881  |
| Ungrammatical | 0.3000000    | 0.2807018 | 0.4622642  |

Table 20. Long-distance agreement with singular subjects, mean scores by group

|               | L1 Norwegian | Bilingual | L1 Russian |
|---------------|--------------|-----------|------------|
| Total         | 0.6166667    | 0.7543860 | 0.5110063  |
| Grammatical   | 0.8000000    | 0.8771930 | 0.5691824  |
| Ungrammatical | 0.4333333    | 0.6315789 | 0.4528302  |

Table 21. Long-distance agreement with plural subjects, mean scores by group

|               | L1 Norwegian | Bilingual | L1 Russian |
|---------------|--------------|-----------|------------|
| Total         | 0.5333333    | 0.4561404 | 0.5157233  |
| Grammatical   | 0.6666667    | 0.5263158 | 0.5471698  |
| Ungrammatical | 0.4000000    | 0.3859649 | 0.4842767  |

Table 22. Topicalised sentences, mean scores by group

|               | L1 Norwegian | Bilingual | L1 Russian |
|---------------|--------------|-----------|------------|
| Total         | 0.8166667    | 0.8771930 | 0.7091195  |
| Grammatical   | 0.8166667    | 0.8421053 | 0.6792453  |
| Ungrammatical | 0.8166667    | 0.9122807 | 0.7389937  |

Table 23. Adv-V word order, mean scores by group

|               | L1 Norwegian | Bilingual | L1 Russian |
|---------------|--------------|-----------|------------|
| Total         | 0.7250000    | 0.7894737 | 0.6556604  |
| Grammatical   | 0.7833333    | 0.8245614 | 0.6729560  |
| Ungrammatical | 0.6666667    | 0.7543860 | 0.6383648  |

## Appendix H: The Bayesian mixed effects logistic regression

Formula: Accuracy ~ Group\*ConditionN\*ProficiencyScoreC + Age + (1 + ConditionN|Participant) + (1|Item)

| <i>Predictors</i>                      | <b>Accuracy</b>    |                 |
|----------------------------------------|--------------------|-----------------|
|                                        | <i>Odds Ratios</i> | <i>CI (95%)</i> |
| Intercept                              | 2.13               | 0.92 – 5.02     |
| GroupNor                               | 1.64               | 0.93 – 3.00     |
| GroupRus                               | 0.48               | 0.32 – 0.74     |
| ConditionNGenericity                   | 0.38               | 0.22 – 0.66     |
| ConditionNSVA_PL                       | 0.39               | 0.22 – 0.69     |
| ConditionNSVA_SG                       | 0.77               | 0.43 – 1.38     |
| ConditionNV2                           | 1.27               | 0.66 – 2.46     |
| ProficiencyScoreC                      | 1.10               | 1.04 – 1.16     |
| Age                                    | 1.01               | 0.95 – 1.07     |
| GroupNor:ConditionNGenericity          | 1.18               | 0.54 – 2.60     |
| GroupRus:ConditionNGenericity          | 2.55               | 1.46 – 4.45     |
| GroupNor:ConditionNSVA_PL              | 0.69               | 0.30 – 1.57     |
| GroupRus:ConditionNSVA_PL              | 2.79               | 1.55 – 5.05     |
| GroupNor:ConditionNSVA_SG              | 0.44               | 0.20 – 0.99     |
| GroupRus:ConditionNSVA_SG              | 1.43               | 0.80 – 2.55     |
| GroupNor:ConditionNV2                  | 1.23               | 0.48 – 3.24     |
| GroupRus:ConditionNV2                  | 1.87               | 0.97 – 3.63     |
| GroupNor:ProficiencyScoreC             | 0.90               | 0.84 – 0.97     |
| GroupRus:ProficiencyScoreC             | 0.91               | 0.86 – 0.97     |
| ConditionNGenericity:ProficiencyScoreC | 0.93               | 0.87 – 1.00     |
| ConditionNSVA_PL:ProficiencyScoreC     | 0.92               | 0.86 – 0.99     |
| ConditionNSVA_SG:ProficiencyScoreC     | 0.95               | 0.88 – 1.02     |

|                                                 |      |             |
|-------------------------------------------------|------|-------------|
| ConditionNV2:ProficiencyScoreC                  | 1.01 | 0.93 – 1.10 |
| GroupNor:ConditionNGenericity:ProficiencyScoreC | 1.07 | 0.98 – 1.17 |
| GroupRus:ConditionNGenericity:ProficiencyScoreC | 1.07 | 0.99 – 1.16 |
| GroupNor:ConditionNSVA_PL:ProficiencyScoreC     | 1.10 | 1.00 – 1.20 |
| GroupRus:ConditionNSVA_PL:ProficiencyScoreC     | 1.10 | 1.02 – 1.20 |
| GroupNor:ConditionNSVA_SG:ProficiencyScoreC     | 1.10 | 1.00 – 1.21 |
| GroupRus:ConditionNSVA_SG:ProficiencyScoreC     | 1.09 | 1.01 – 1.19 |
| GroupNor:ConditionNV2:ProficiencyScoreC         | 0.95 | 0.85 – 1.06 |
| GroupRus:ConditionNV2:ProficiencyScoreC         | 1.05 | 0.95 – 1.16 |

### Random Effects

|                                                      |               |
|------------------------------------------------------|---------------|
| $\sigma^2$                                           | 3.29          |
| $\tau_{00}$ Item                                     | 0.06          |
| $\tau_{00}$ Participant                              | 0.03          |
| $\tau_{11}$ Participant.ConditionNGenericity         | 0.02          |
| $\tau_{11}$ Participant.ConditionNSVA_PL             | 0.08          |
| $\tau_{11}$ Participant.ConditionNSVA_SG             | 0.07          |
| $\tau_{11}$ Participant.ConditionNV2                 | 0.24          |
| $\rho_{01}$                                          |               |
| $\rho_{01}$                                          |               |
| ICC                                                  | 0.05          |
| N Participant                                        | 145           |
| N Item                                               | 60            |
| <hr/>                                                |               |
| Observations                                         | 8698          |
| Marginal R <sup>2</sup> / Conditional R <sup>2</sup> | 0.049 / 0.074 |

## Appendix I: The Bayesian logistic regression (HL use effects)

Formula: Accuracy ~ ConditionN\*HLUseScoreC + ProficiencyScoreC + Age + (1 + ConditionN|Participant) + (1|Item)

| <i>Predictors</i>                            | <b>Accuracy</b>    |                 |
|----------------------------------------------|--------------------|-----------------|
|                                              | <i>Odds Ratios</i> | <i>CI (95%)</i> |
| Intercept                                    | 5.34               | 0.74 – 40.69    |
| ConditionNGenericity                         | 0.23               | 0.14 – 0.38     |
| ConditionNSVA_PL                             | 0.22               | 0.13 – 0.38     |
| ConditionNSVA_SG                             | 0.56               | 0.33 – 0.99     |
| ConditionNV2                                 | 1.29               | 0.70 – 2.49     |
| HLUseScoreC                                  | 1.02               | 0.88 – 1.18     |
| ProficiencyScoreC                            | 1.06               | 1.01 – 1.10     |
| Age                                          | 0.99               | 0.84 – 1.16     |
| ConditionNGenericity:HLUseScoreC             | 1.01               | 0.84 – 1.20     |
| ConditionNSVA_PL:HLUseScoreC                 | 1.04               | 0.87 – 1.24     |
| ConditionNSVA_SG:HLUseScoreC                 | 1.02               | 0.85 – 1.23     |
| ConditionNV2:HLUseScoreC                     | 1.02               | 0.82 – 1.28     |
| <b>Random Effects</b>                        |                    |                 |
| $\sigma^2$                                   | 3.29               |                 |
| $\tau_{00}$ Item                             | 0.13               |                 |
| $\tau_{00}$ Participant                      | 0.11               |                 |
| $\tau_{11}$ Participant.ConditionNGenericity | 0.09               |                 |
| $\tau_{11}$ Participant.ConditionNSVA_PL     | 0.13               |                 |
| $\tau_{11}$ Participant.ConditionNSVA_SG     | 0.21               |                 |
| $\tau_{11}$ Participant.ConditionNV2         | 0.45               |                 |
| $\rho_{01}$                                  |                    |                 |
| $\rho_{01}$                                  |                    |                 |
| ICC                                          | 0.11               |                 |
| N Participant                                | 19                 |                 |
| N Item                                       | 60                 |                 |

---

|                                    |               |
|------------------------------------|---------------|
| Observations                       | 1140          |
| Marginal $R^2$ / Conditional $R^2$ | 0.122 / 0.161 |