Grammar competence in Lule Sami L1 and L2 young speakers

An investigation of consonant gradation, the grammar of spatial expressions and personal pronouns marked for dual

by

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Master´s thesis

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November 2013

II

Abstract

The current master thesis is a study of the grammatical competence of Lulesami speakers. Lule Sami is a minority language in Norway and Sweden that suffers under the dominant languages of the aforementioned nation states. Lule Sami speakers today are bilinguals with varying degrees of proficiency in their mother tongue. Very little research has been done on this endangered language, especially when it comes to the field of language acquisition. Based on a battery of tests, the study is an investigation on the use of three grammatical features, which include grade alternation, the grammar of spatial expressions, and personal pronouns marked for dual. These are all grammar elements that differ significantly from Norwegian, and one of the objectives of this study was to investigate the influence of Norwegian on Lule Sami. Focal points of the study were therefore to compare and explore whether there were any differences between Lule Sami speakers of different proficiencies. Both L1 and L2 speakers of Lule Sami participated in this study. The results show that Lule Sami is subject to cross-linguistic influence when it comes to all of the aforementioned grammatical categories. Furthermore, the differences in performance may be attributed to both quality and quantity of input.

Acknowledgements

First and foremost I want to thank my supervisors Mila Vulchanova and Anne Dahl for all their help and guidance in writing this thesis.

I would also like to thank Bruce Morén-Duolljá for his invaluable help with the Lule Sami grammar part of my thesis.

Thank you to friends and family for their support and encouragement and for their comments on the various aspects of my master's thesis.

Last, but not least I want to express my gratitude to all the participants for taking part in my study, and to the educational institutions for letting me borrow of their time to conduct my tests

Trondheim, 15.11.13
Sandra Nystø Ráhka

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1 Introduction

The thesis begins with a brief historical account of the Sami and the Lule Sami language.

1.1 Background

1.1.1 Lule Sami history

The Sami are an indigenous people and an ethnic minority living in the northern parts of Norway, Sweden and Finland, as well as on the Kola Peninsula in Russia. Lule Sami is one of 10 different Sami languages and is part of a language family belonging to the Finno-Ugric language group, which traces it's steps more than 4000 years back (Svonni, 2004). The Sami languages do not follow the borders of the nation states, but go across them making parts of both Norway and Sweden homeland for the Lule Sami language. In Norway, the Lule Sami area stretches from Saltfjellet in the south towards Ballangen in the North, with Divtasvuodna/Tysfjord as the language center.

Lule Sami is one of the bigger Sami languages, but throughout time, and with the help of active assimilation policies, the majority languages of Norwegian and Swedish have become the dominant languages even in traditional Lule Sami language centers, and the number of Lule Sami speakers today is low. It is difficult to assess exactly how many speakers there are, as it is equally difficult to assess exactly how many Lule Sami people there are in the world. The approximate number of Lule Sami speakers, however, is estimated to be between 500 and 2000 (St.meld.nr28(2007-2008)).

UNESCO (2010) defines Lule Sami as a severely endangered language. It has suffered the fate of so many indigenous languages before it, namely brutal assimilation policies and discrimination. The Sami were subject to an active, extensive assimilation process by the Norwegian government meant to make the Sami give up their languages, their cultural heritage and change their national

identity. These policies are commonly referred to as the *Norwegianisation[1]
process*, stretching from about 1850 up to roughly 1980 (Minde, 2005). Effective
means were used in order to assimilate Sami to become Norwegians. In 1851, a
special item in the national budget was set to fund this process: The Lapp Fund is
often considered the beginning of these 100 years of assimilation (Minde, 2005).
It was established in order to promote the teaching of Norwegian in Sami areas
and "to ensure the enlightenment of the Sami people" (Minde, 2005:12).
Language was seen as a measure of this policy's success, and the education
system was thus central. In Einar Niemi's (1997:268, as cited in Minde, 2005)
words, the policy of Norwegianisation was introduced "with school as the
battleground and teachers as frontline soldiers". Not only were children to learn
Norwegian in school, they were to learn only Norwegian, and not their mother
tongue. Sami was forbidden, even in recess (Minde, 2005; Evjen 1998). Harsh
methods were often used, and even more so with the new instruction introduced
in 1880: Teachers who were unable to demonstrate good results in this linguistic
decodification process were not given a wage increase (Minde, 2005). Sami
children were often sent to boarding schools far away from home for weeks at a
time. They would find themselves at foreign places were no one knew their
language or appreciated their culture. Not only were they forced to stop speaking
their mother tongue, they were also taught to devalue and eventually forget their
heritage. At home, their parents often did not fare much better. Not only did their
children return back home speaking a foreign language; they faced difficulties
when it came to, for instance, land ownership: The Jordlova of 1905 stated that
in order to own land you needed to speak the Norwegian language
(NOU2001:34).

Minorities and especially indigenous peoples have seldom had a high status in
the eyes of the majority, so also in Sábme[2]. Racism was an everyday experience
for the Sami, and their culture and traditions were generally seen as backward

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[1] The term used about the assimilation policies by the Norwegian government, see Minde (2005)

[2] The Sami name of the traditional Sámi area. For more information see Gáldu (2006b) at
http://www.galdu.org/govat/doc/eng_sami.pdf.

and less developed, inferior to that of Norwegian. The assimilation policies by the government were a symbol of the social Darwinist and racial ideas of the time, in addition to the nationalist attitudes apparent especially during the late 1800s (Høgmo, 2011).

Generations were not only forced to stop speaking Sami; a result of this process was that many chose to do this themselves. Due to the low status of the Sami culture and language, shame was often tied to Sami heritage, and in the end generations stopped acknowledging their history and heritage, giving up their ethnicities. And this is the most tragic outcome of history: Language policies can be changed, official views altered and languages can be revived, but the true impact of the assimilation policies is the pain that remains in people's hearths and souls. And those hurts are not as easily mended.

These decades of linguistic and cultural suppression have had a lasting toll on the Sami communities, but it is at the same time important to note that the Norwegianisation process was not experienced in the same way everywhere in Sábme. Every community has a unique story to tell: While the assimilation process was not as harsh in some places, in other places the Sami culture hardly seems to exist today – on the surface, at least. Especially the coastal Sami communities were heavily affected, and still today they are amongst the Sami communities that struggle the most with revitalization of both culture and language (Høgmo, 2011).

1.1.2   The Lule Sami Language in Divtasvuodna

Divtasvuodna can be considered the Lule Sami language center in Norway. The language situation in Divtasvuodna was in the late 1900s to a large degree the same as in Sábme in general. Officially the language was not recognized, but made invisible and actively suppressed through active assimilation policies. Lule Sami was only heard in the private sphere, but over time faltering also there due to the aforementioned policies and the negative attitudes towards the Sami.

In Divtasvuodna, most of the Sami originally lived in the fjords. To a large degree, they lived isolated from the Norwegian big society with their own ways of life, with their own infrastructure and organization, based on traditional livelihoods. Lule Sami was the home language, the natural communication language, and children often did not know Norwegian until they left for school. The 1950s changed the Lule Sami societies in Divtasvuodna: People started moving out of the fjords and settled in the small town centers of Gásluokta/Kjøpsvik and Ájluokta/Drag. The emergence of the modern welfare state, where centralization was a central goal, caused big changes in both living patterns and ways of living for the Lule Sami – and as a result of this – changes in the language situation, as well (Aira, 2002). An active depopulation policy by the government was initiated to move people out from the fjords. The fjords were thus depopulated and the Sami had to get accustomed to new ways of living. The Sami had to integrate into the Norwegian big society and live after the big society's structure and organization on a whole new, more fundamental level. The traditional ways of living were no longer the basis for living and with this, the traditional arenas where Lule Sami was spoken where diminished. Now only individual homes and the church were the natural places where Lule Sami was heard, and over time, the houses in which Lule Sami was heard would become further and further apart.

The Old Apostolic Lutheran Church has remained an important meeting place for the Sami in Divtasvuodna. Mark that this is a different church than the state church of Norway that was one of the front runners in the *Norwegianisation* of the Sami. The Old Apostolic Lutheran Church has been important for the Sami since the *Laestadianism*[3] reached Divtasvuodna in the late 1800s (Andersen, 2007). The Sami language and culture has not always been particularly welcome here either, but it has nevertheless remained one of the few traditional Lule Sami arenas still found today. Knutsen (2005) explains that both believers and non-

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[3] The religious movement that follows the preaching of Lars Levi Læstadius, a priest who lived and worked in Sábme during the first half of the 1800s.

believers belong to the church community and it has thus become an important Lule Sami meeting place.

Both Sami and non-Sami made up the population in the town centers where the Sami soon became a minority. Norwegian was the prevailing and dominant language in all spheres, and even the Lule Sami home fell under the heavy weights of these new times. Parents quit speaking their mother tongue to their children, preferring Norwegian because they saw little future for them with a Lule Sami first language. Lule Sami was left little value and became a language only parents and grandparents used. This was the beginning of a period of language shift, creating a generation who did not learn their Sami mother tongue (Aira 2002).

The end of this period, however, saw a change: Aira (2002) calls this the turning point, lasting from the 1980s to the new century. Due to renewed national policies towards the Samis, attitudes towards language and culture changed too. The damming of the Alta-Kautokeino watercourse, also know as the Alta Controversy[4] of 1979-81 kicked off a new era for Sami politics. Already in the decades before, since the time after World War II, there had been a steady increase in policy changing and language revitalization attempts, but it is this event that stands as a symbol for the Sami fight against cultural discrimination and the rise of the recognition of Sami rights. A wave of new policies was presented, reversing the conditions for the Sami languages.

1.1.3   The Lule Sami Language situation today

Lule Sami has quite a unique language profile. According to UNESCOs model (2003), the most commonly used factor for assessing language vitality and endangerment is intergenerational language transmission. The most common trait for an endangered language is that children and young people no longer use the language, and only the parent generation or even only the grandparent

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[4] For more, see Gáldu (2006a) at http://www.galdu.org/govat/doc/eng_damning.pdf

generation are active language users. This is, however, not the case for Lulesami: There is no gradual decline in the number of speakers steadily decreasing from the great-grandparent generation to the youngest; rather, it is only today's parent generation that lacks language competence in their should-be first language, while both older and younger generations are, to various degrees, Lule Sami speakers (Nordlandsforskning, 2012).

The result of this parent generation that does not speak Lule Sami is that most Lule Sami children growing up today do not have Lulesami as their home language; they are children of parents who speak little or no Lule Sami at all. To varying degrees they have, nevertheless, been exposed to Lule Sami since early childhood from grandparents, the wider family and in other informal social arenas. There are some exceptions where children have Sami or both Norwegian and Sami as home languages and thus they grow up acquiring two first languages. For the majority, however, their first language is Norwegian and their second is Lule Sami, and the school is thus the primary Lule Sami language arena.

In between these two generations, there is a middle generation, born between the late 1980s and the 1990s, to parents who made an active decision to raise their children in Lule Sami speaking homes. A group of these parents established a Lule Sami kindergarten where the sole purpose was to give children a Lule Sami language arena also outside the home where they could become language speakers (Lund, 2009). In 1991, the first of these children reached school age and she had, as the first person in the world, Lule Sami as a first language in school. Since then, there has been a steady increase in the number of students learning Lule Sami in school. Sámi Allaskuvla (2011) reported that in the school year of 2010-2011, there were all in all 96 students who had Lule Sami in primary and secondary school: 29 of these where enrolled in the language immersion program called 'Lule Sami as a first language' and 67 of these had Lule Sami as a class only, much like a foreign language, called 'Lule Sami as a second language'.

1.2 The rationale for the study

Children today do not necessarily have Lule Sami as a home language and are exposed to varying degrees of input in the language. When children are exposed to differing amounts of exposure to the language, they also acquire the different aspects of language to different levels.

Educational institutions like kinder garden and school become of utmost importance when the home is no longer the primary language arena. The children come from different language backgrounds and thus with differing language competence, and it is therefore crucial that the children are met at their own language level; adapted language-teaching programs become increasingly important when the children have various degrees of language competence to begin with.

In order to provide for adapted education based on the child's own language level, knowledge about children's language acquisition is crucial; it is important to know how the language of Lule Sami speakers are at the different language levels.

1.2.1 The scope of the study

The purpose of the study is to investigate the grammatical competence of Lule Sami speakers. (Cook, 2008) defines grammatical competence as the knowledge of language stored in a person's mind. The term was first used by Chomsky in the 1960s and refers to the implicit knowledge of structural regularities of language in the mind and the ability to recognize and produce these distinctive grammatical structures.

Three grammatical features have been chosen for investigation, and the goal is to examine the use of these features. The hope is that this study will provide for an overview of the linguistic competence of young Lule Sami speakers that might give way for a more thorough investigation of the grammatical competence of Lule Sami in the future.

The specific hypothesizes on the use of these aforementioned grammatical features will be given after the theoretical background.

Due to the scope of this project, the focus of this study will be on the Lule Sami language on the Norwegian side of the border. The data was thus collected in Divtasvuodna/Tysfjord.

1.3   Guide through the thesis

The thesis consists of five main chapters. It begins with an introductory chapter explaining the background for and the significance of the study. Chapter two gives the theoretical background, first on the linguistic aspects of bilingualism before an overview of Lule Sami grammar. The hypotheses and expected findings are presented in an a short section before the methodology is described in chapter 3. The last two chapters conclude the thesis with a presentation of the results and a thorough discussion on the findings, including suggestions for further research.

2   Theoretical background

2.1   The linguistic aspects of bilingualism

This chapter presents the theoretical background on issues concerning bilingualism, including the role of input, cross-linguistic influences, the linguistic system of bilinguals and the cognitive changes a bilingual experience leads to.

2.1.1   Definition of terms

First Language (L1)

According to Gass and Selinker (2008) a first language is usually defined as the language a person is most proficient in, has most competence within, and uses the most. Native language is often used as a synonym. It is possible to have two or more first languages.

Second Language (L2)

Gass and Selinker (2008) define a second language as a language a person acquires after the acquisition of the first. A second language may refer to any language a person learns after the first, regardless of whether it chronologically is the second, third or fourth.

Heritage Language (HL)

Montrul (2010) defines heritage language learners as children of families who speak an ethnolinguistically minority language, who usually have a strong command of the majority language, but with varying competence in their heritage language. A heritage language can be both a first language and a second language, but it can also have characteristics of both L1 and L2 acquisition. Valdés (2001) further notes that it is the historical and personal ties to the language that are salient and not actual language proficiency.

Mother tongue

The term mother tongue is usually used as a synonym for first language and native language. In this thesis, however, it is defined more along the lines of the sentiments for HL. A more thorough discussion on this will be given in section 2.1.4. on language competence.

2.1.2 First and second language acquisition

The human language capacity is truly remarkable. Under normal circumstances children acquire their first language at an astonishing speed. By the time they reach school age, basic grammar is in place and children often speak fluently. The process of language acquisition is similar all over the world and across all languages. By the time of birth, the child is already tuned in on the rhythm and melodies of the language or languages it has been exposed to (Karmiloff & Karmiloff-Smith, 2002). Children start speaking around 12 or 14 months of age, but they understand more than they can produce. Their first language productions are usually simple nouns and then they will then attempt to put words together, usually two-word utterances. The language of a toddler is not as complex as adult speech, but it does resemble it. Children's speech mirrors the canonical sequence of phrases, and this is the most obvious sign of early syntactic knowledge. By the age of four or five, most children speak fluently, but Karmiloff and Karmiloff-Smith (2002) argue that language acquisition is still far from over at this point as there are still complex grammar to acquire and new linguistic meanings to learn.

Second language acquisition is the acquisition of a new language after the first one. Most often L2 acquisition refers to adults learning another language in addition to their native language, but as will be discussed in the next section, there is such a thing as child L2 acquisition, as well. A second language learner seldom acquires the native-like competence of a first language speaker, and especially older learners have difficulties acquiring a second language with the native-like competence of a first language speaker no matter how much input they receive in the target language. Often they never become fully fluent in the target language, but become subject to fossilization, a stage in the language learning process where the learner experiences a loss of progress no matter the amount of instruction and practice given in the target language (Gass & Selinker, 2008).

Age of acquisition is in fact on of the most important factors in language acquisition, along with the input received in the second language. To what

degree a critical period exists or not, is still up to debate. That there are age effects in language acquisition, however, is well known; the ability to acquire any given language declines with age. Other factors that affect second language acquisition are individual differences like motivation for L2 learning, language attitudes and aptitude. Bialystok (2001) lists the nature of language exposure, socioeconomic status, language status and opportunity for formal education of the language as factors influencing language competence, as well.

2.1.3 Bilingual language acquisition

Growing up with two languages is not uncommon; in fact, in most of the world, bilingualism is the norm rather than the exception. While earlier debates focused on whether bilingualism was an experience that was harmful for the child, we know today that it is not. Scholars widely agree that positive cognitive consequences come with bilingualism and that bilingual children reach the same linguistic milestones in language development at the same time as their monolingual counterparts (Paradis, Genesee, & Crago, 2011). Still, bilingualism is different from monolingualism in that bilingualism after all is the knowledge of two languages in the mind. Unlike a monolingual who has to process and acquire only one language – and this is as already a complex phenomenon – a bilingual has to continuously process and differentiate between two language inputs.

There are two main types of bilingual acquisition: Simultaneous and sequential bilingualism. The first type refers to the acquisition of two languages from the beginning with the end result of two L1s. According to Grosjean (2010) simultaneous bilinguals make up less than 20 percent of the bilingual children in the world as opposed to sequential, or successive bilingualism that is the most common. Sequential bilingualism refers to bilingual acquisition where a first language is already present at the starting point of the acquisition of another one. The end result might very well be another first language, if the child is young enough at the age of exposure, but for older learner it most likely will remain just a second language in which they do not acquire native-like competence.

Child L2 acquisition has not always been studied as a subfield on its own apart from general or adult L2 acquisition on the one hand and simultaneous bilingualism on the other. Paradis (2006) argues that there is a need to distinguish these three subfields of language acquisition studies, as they do not necessarily denote the same population. Meisel (2006), in addition, suggests very concrete age ranges for when the starting point of acquisition should be for each subgroup, based on the idea of specific critical periods in language acquisition. Paradis (2006), however, does not offer such specific cut-off ages.

Age effects are well known in language acquisition, but there is still much controversy about the nature of these effects. While Lenneberg's (1967, as cited in Meisel, 2006) classical version of the critical period hypothesis has indeed been developed and modified since it first saw the light of day, there is still much debate on whether it still is reasonable to argue for a specific critical period. An aspect in the debate is that different aspects of language are acquired at different times, making it reasonable to argue for several sensitive periods in language acquisition, and not only one (Meisel, 2006).

A third type of bilingualism is heritage language acquisition. Heritage language is a relatively new term, used first in education literature. While the term has existed since the early 1970s, only recently has it gained significance and been recognized as a variable in second language research (Gass & Selinker, 2008; Hornberger & Wang, 2008). Montrul (2005) claims heritage speakers are a specific sub-group of bilinguals with a unique linguistic profile consisting of traces from both first and second language acquisition. Heritage speakers are a heterogeneous group with various levels of language competence in their heritage language: While some might be simultaneous bilinguals who did not fully acquire their L1 as children, others on the other hand might have only heard the HL occasionally during their childhood. What they nevertheless have in common is that the majority language is their dominant language. Heritage speakers are bilinguals with varying degrees of proficiency in their heritage language (Gass & Selinker, 2008; Montrul, 2005).

A thorough discussion on bilingual first language acquisition, child second language acquisition and heritage language acquisition will be given in sections 2.1.6, 2.1.7 and 2.1.8.

2.1.4 Language competence

One of the most common assumptions about bilingualism is probably that bilinguals are expected to be equally fluent in both languages, to be a so-called balanced bilingual, or what Valdés (2001) refers to as the "mythical bilingual". Bialystok (2001) explains that generally, bilinguals are expected to function equally well in the two languages, switching effortlessly between them and using them according to appropriate sociocultural standards.

There are indeed many competing definitions of what exactly makes a bilingual and how much language competence a bilingual is expected to have in each language. Language competence itself can be a tricky concept, because where does one draw the line for "nativeness"; when is one counted as a native-speaker of any given language? Bloomfield (1927, as cited in Gass & Selinker, 2008) defines native language as the first language a human being learns. The terms first language, native language and mother tongue are often used as synonyms referring to the language a person acquires first and knows the best, i.e. the native language of a person. For the most part, this issue of nativeness is not particularly problematic, since for most people, their native language equals their first language or their mother tongue, and that is the language they know the best.

While the standard assumption is that the language you have acquired from birth or shortly thereafter is your first language, it might not necessarily be that straightforward, because what if your native language, the first language you acquired, is no longer the language you know the best? What if your first language, a minority language in your community, remained only a first language in childhood and was later replaced with the dominant language of the majority

society? This is usually the case for heritage language speakers: A heritage language is often defined as a minority language in a given community, usually only spoken in the home and often suffering under the pressure of the dominant language which is the language of the larger community. Heritage speakers often acquire native-like competence in their second language, and more significantly, due to reduced input they often do not acquire complete first language competence in their native language, the heritage language. According to Montrul (2010) heritage speakers often become victims of incomplete L1 acquisition or they might experience L1 attrition due to this reduced exposure to their home language.

Valdés (2001) explains that it is the personal ties to a language that mostly define heritage language, and not first and foremost language proficiency. In this it shares much of the sentiments of the term mother tongue. While mother tongue traditionally has been, and still is widely being used as a synonym for both first language and native language, it is to a large degree agreed upon in the field of language acquisition studies that it is not a particularly fruitful term. Yet while maybe not so much linguistically informative, mother tongue can have a more sentimental value as the language important for identity and heritage. In this sense mother tongue could be said to be the language closest to the hearth, potentially having nothing to do with actual language competence. Different from heritage language, it need not be the language you learn as a child – in fact you might not have any competence in the language at all, yet it remains the language of your ancestors and wider family. The mother tongue could then be the language spoken in the home by parents, grandparents or in other informal settings, but not necessarily the language you yourself acquired as a first language. This is how many people might feel about their minority languages such as Sami.

The issue of nativeness is thus not as straight-forwards as it seems. There are general assumptions on what language competence entails when it comes to a first language, a native language, a second language or bilingualism. Yet, as discussed in Bialystok (2001), people tend to make subjective judgments about

people's language competence based on apparent objective ideas of the degree of mastery of basic linguistic rules of language people are supposed to have at any language level, be it structure, morphology or pronunciation. However, measuring language competence is not easy. After all, she continues, it is not a categorical variable like age or gender: Even if we make these objective judgments, we still make subjective comparisons based on our own expectations of how a native speaker should behave.

The question remains whether there really is such a thing as a standard native speaker? According to Bialystok (2001), it is easy to find examples where native speakers' languages deviate from the more or less established norms. Most languages of the world have several dialects that more or less differ from the standard variation of the given language. Bialystok (2001) points to the variations of English as an example: Compare, for instance, the standardized dialects in Britain, Canada and Australia. Even more apparent are the different dialects in England only: Look, for instance, only at the differences from the Queen's speech at the opening of the Parliament, to the language of a clerk in Yorkshire to the dialect of a farmer in Devon.

On the issue of language competence, Bialystok (2001) concludes that it is difficult to come to a clear-cut definition of how a bilingual's language competence should be, and what we need to do is to be constantly aware of these issues when conducting research on bilingualism. Especially when the issue is heritage language bilingualism, researchers should be well aware of how it differs from the more standard, common forms of bilingualism.

2.1.5   The role of input in bilingualism

Input is a decisive factor in language acquisition; in both bilingual and second language acquisition, the quantity and the quality of input is crucial. The role of input becomes especially apparent when looking at heritage language speakers. Heritage speakers are raised in a bilingual setting consisting of a majority and a minority language, where the minority language is acquired as the first language,

but where the end result, precisely due to the amount of input, is that the majority language becomes the dominant one later in life.

Gathercole and Mon Thomas (2009:213) found that in "bilingual communities in which one language is very dominant, acquisition of the dominant language may be quite unproblematic across sub-groups, while the acquisition of the minority language can be hampered under conditions of reduced input". They conducted a study on Welsh-English bilinguals and found that the command of Welsh was directly correlated with the level of input received, while English was acquired without problems regardless of language spoken at home or school. Furthermore, and more remarkably, they found that continuous exposure to Welsh was crucial for maintenance of the competence in the language also later in life.

Vulchanova, Vulchanov, Sarzhanova, and Eshuis (2012) found much the same in a study done on Russian-Kazakh bilinguals. Firstly, they demonstrated that bilingualism is not disadvantageous for early lexical development; in fact, they found that the bilingual vocabulary size was bigger than either of the monolingual vocabularies. They attributed this to the participants' early exposure to both languages, and the role of input in the form of immersion and structured education. The puzzling finding, however, was that the Kazakh bilinguals outperformed the Russian bilinguals on Russian, and they performed better in their L2, Russian, than their L1, Kazakh. Vulchanova et.al (2012) attribute these findings to the sociolinguistic situation in Kazakhstan, where Russian still has status as a dominant language causing the Kazakh children to receive massive exposure to Russian not only through immersion, but also from the society at large.

The role of input, it seems, cannot be emphasized enough for minority language acquisition.

2.1.6 The linguistic system of bilingual first language speakers

Bilinguals follow the same developmental patterns as monolinguals. Earlier concerns regarding bilingualism have been on whether bilingualism is an experience that confuses the child linguistically or whether it in any way might be harmful to the child. Still today debates tend to be on the degree to which a child differentiates between his or her languages, whether bilingual children show delay in the rate of language acquisition, and whether there in bilingual acquisition are any deviations from monolingual norms of acquisition (Meisel, 2006). Generally, it is widely accepted that bilinguals do not show significant delays in language development, nor are there any qualitative deviations from monolingual language acquisition patterns. To what extent bilinguals differentiate between their languages is, however, still very much debated, although it is widely acknowledged that they do separate between their languages in their minds.

Much of the fear concerning bilingualism stems from what Meisel (2006) characterizes as a monolingual bias in linguistic research. He suggests, along the lines of Grosjean (2010), that comparing bilingual language competence with monolingual language competence is not fair because the two instances are so different from another. Bilingualism is after all the knowledge of two languages in the mind. Genesee & Nicoladis (2006) admit that while comparing the development of bilinguals to that of monolinguals might be inappropriate due to many reasons, they argue that such comparison nevertheless can reveal to what extent bilingual first language acquisition actually does differ from monolingual acquisition, and more importantly what such differences could mean.

One of the main issues concerning bilingual first language acquisition has been the organization of languages in the bilingual mind, or whether bilinguals separate between their languages. While Volterra and Taeschner in 1978 (as cited in Genesee & Nicoladis, 2006) argued for a unitary language system, there is today strong evidence for the separation of language systems hypothesis (see for instance DeHouwer, 2005; Genesee, 2001; Meisel, 2001). In fact, bilinguals distinguish and separate between their languages already from infancy. Already

in the womb infants learn to discriminate between languages from different rhythmical classes, and already at this point bilinguals use different strategies than monolinguals in order to discriminate between languages: Monolingual infants cannot separate between two unknown languages within the same rhythmical class, this is something only bilinguals do, suggesting that different mechanisms are in place for bilingual and monolingual speech processing (Werker & Byers-Heinlein, 2008). Not only do rhythmical cues help the bilingual child to discriminate languages and thus to keep his or her languages apart, Werker and Byers-Heinlein (2008) suggest it can bootstrap the acquisition of syntax as there is "a correlation across the worlds languages between surface rhythmicity and underlying syntax" (ibid:14). They suggest that the bilingual child's ability to separate his or her languages on the basis of only rhythmical cues could assist him or her in acquiring separate grammars.

According to Genesee and Nicoladis (2006), there is indeed widespread agreement amongst scholars that bilingual first language learners acquire language specific properties of both their languages early in development, not only when it comes to phonology, but in early morphosyntactic development as well. A study by Paradis and Genesee (1996, as cited in Genesse and Nicoladis 2006) found clear evidence that 2-3 year old French-English children had acquired language specific grammatical rules: The children would, for instance, use finite verb forms earlier in French than in English and they would use "subject pronouns in French exclusively with finite verbs but subject pronouns in English with both finite and non-finite verbs" (ibid:4). These patterns resemble those of monolingual developmental patterns.

Even if there is widespread agreement for the dual system hypothesis, a concern regarding bilingual L1 acquisition has been on the degree of interaction of the languages of a bilingual and how they influence one another. Genesee and Nicoladis (2006) explain that there are instances of cross-linguistic influence of specific morphosyntactic features from one language to the other, suggesting an interdependence between the two language systems of a bilingual. According to Genesee (2001) however, these instances of transfer are mostly temporary and

he argues that for the most part the linguistic systems are developed autonomously and like that of monolingual children. With enough exposure, Genesee explains, bilinguals will develop grammatical competence in their languages to the same degree as monolinguals.

As discussed in Genesee and Nicoladis (2006), the overall findings from bilingual first language acquisition research indicate that bilingual children follow the same rate of morphosyntactic development as monolingual children. While some comparative studies have shown that the bilinguals in question tend to for instance start speaking later than their monolingual counterparts, they nevertheless fall well within the established norms for monolingual rate of acquisition (Meisel, 2006). The segmentation of the speech stream is after all a more complicated task for the bilingual infant: Monolinguals need only process one language, while bilinguals have to distinguish between two inputs and separate the speech they hear into two languages systems (Werker & Byers-Heinlein, 2008).

Bilinguals fall within the norms of monolingual acquisition when it comes to word production and lexical development, as well. It has previously been assumed that bilinguals control a smaller vocabulary in each language than monolinguals as earlier studies have reported negative effects on bilingual lexical measure. Many scholars agree that the average vocabulary size of bilingual children often tend to be smaller than for their monolingual counterparts (see for instance Bialystok 2009). While this might be true, Pearson, Fernandez and Oller already in 1993 claimed that it was unreasonable to compare bilingual language performance to monolingual norms because it does not account for the totalities of the bilingual's abilities. Instead, they argued, both languages must be taken into account when evaluating the lexical development of bilingual children, since only this way the bilingual's larger total competence will be accounted for.

An interesting feature of bilingual lexical development is their acquisition of translation equivalents, another indication of how bilinguals developed separate

processing techniques from monolinguals: Monolingual acquisition of unknown words is expected to be guided by the principle of mutual exclusivity, a principle that would violate a bilingual's acquisition of translation equivalents. Yet, Genesee and Nicoladis (2006) explain that a wide range of research reports that bilinguals children produce translation equivalents from the moment they begin to speak, which might indicate that children already at this point have two distinct lexical systems.

Language mixing was previously taken as evidence for linguistic confusion. Meisel (2006) suggests that this is another monolingual bias that from a bilingual point of view is just a common feature of communication between people speaking the same languages. While code-switching generally is known to be rule-governed and grammatically constrained, the question yet remains whether child code-mixing is thus. Evidence that child code-mixing indeed is rule governed and grammatically constrained as adult code switching is, would provide clear indications of bilinguals linguistic capacity (Genesee & Nicoladis, 2006). In order to code-switch according to the grammatical constraint of each language, the bilingual child has to not only know the grammars of the respective languages, but it also has to know how to coordinate them during production. Researchers generally conclude that child code-mixing is indeed grammatically constrained as they seem to mix their languages at points in utterances where the grammars of both languages are concordant (ibid) This finding does not only confirm the argument that bilingual children do acquire language-specific components early in development, but more importantly that they can access these constraints simultaneously in production (ibid).

2.1.7 The linguistic system of child second language speakers

Much research is done on adult second language acquisition, but child second language acquisition has seldom been treated as a field on its own. Child second language learners are often treated as cases of either simultaneous bilingualism or second language acquisition in general. Even if it is difficult to attempt to pinpoint to exactly when simultaneous bilingualism becomes child bilingualism

and when child bilingualism again becomes a case of more general second language acquisition, both Meisel (2006) and Paradis (2006) argue that such a distinction can be fruitful. After all, child second language learners start acquiring the target language after the acquisition of the first one, and cannot therefore strictly speaking be defined as simultaneous L1 acquisition. The question then is how, if at all, child L2 acquisition differs from bilingual first language acquisition and to what degree. Another question is whether child second language acquisition shares the same traits of adult L2 acquisition.

Tabors (1997, as cited in Paradis 2006) identified four stages in child L2 learning: A first, short initial stage where the home language is used even in L2 settings. The child, however, soon figures out he or she cannot make him- or herself understood with the first language and abandons this initial stage quickly. Then follows a longer non-verbal period where the child barely speaks at all. This stage can be shorter or longer lasting, all depending on the age of the child. The third stage is called the formulaic or the telegraphic period due to the extensive use of formulaic and memorized phrases. The fourth period is the final stage with a lot of productive language use. By this stage, the child has developed an interlanguage based on the target language. Paradis (2006:388) explains that interlanguage is a L2 learner language that is "reasonable fluent and is the product of an underlying productive linguistic system, but differs from the target language".

Children acquiring a second language at any age have at least some first language knowledge to build upon. When it comes to the morphosyntactic acquisition of L2 learners, developmental studies on children's errors with grammatical morphemes and syntactic studies have focused on examining whether interlanguage errors are developmental -or transfer-based: Dulay and Burt (1973 and 1974, as cited in Paradis 2006) conducted studies on both Spanish-English and Spanish-Chinese bilingual children and found that their errors were developmental in origin, and thus not traceable to their first language. The developmental errors are often omission ones, a significant feature of L2 interlanguage.

According to Gass and Selinker (2008), Dulay and Burt were the first to apply the findings from Brown's famous morpheme order studies to child second language acquisition. Brown (1973, as cited in Gass & Selinker 2008) found that there was a predictable order of acquisition of certain inflectional morphemes in English and that the acquisition of these morphemes were consistent across language backgrounds. Dulay and Burt (ibid) found that the order sequence of morpheme acquisition in L2 English is similar to that found in L1 English. The acquisition of these morphemes is also similar regardless of the first language of the English L2 learners. According to Paradis (2006), second language acquisition of grammatical morphemes does in fact parallel L1 acquisition on many aspects: The fact that L2 learners seem to acquire finite verb morphology later than non-finiteness-related morphology mirrors L1 acquisition patterns for early- and late-acquired morphemes. Dulay and Burt (1973, as cited in Paradis 2006) found that early-acquired morphemes in child L2 are progressive *–ing* and plural *–s*, and late-acquired ones are past tense *–ed* and third person singular *–s*, similar to the findings of Brown in 1973. Parallels between L2 and L1 acquisition have also been found in the acquisition of grammatical aspect and object pronouns (Paradis, 2006).

There are also differences between L1 and child L2 acquisition: Paradis (2006) explains that these in particular include the occurrence of omission errors by L2 children and the overgeneralization of the BE-morpheme as a general all-purpose finiteness marker. Another feature is the preference of null-subjects in the speech of young children. This seems to be a common trait in language development in general, as the preference of pro-drop widely appears in the speech of young children across languages. This phenomenon may also occur even if the target language does not permit pro-drop. The appearance of null-subjects amongst child L2 learners, however, is not common. Even if the child's L1 permits this feature, pro-drop is infrequent in child L2 acquisition. Paradis (2006) suggests that this might be due the L2 learners' maturity.

Phonology might be the area where the differences between L1 and L2 speakers are clearest. A child's phonetic categories are after all already set within months

of birth. According to Flege (1999, as cited in Paradis 2006), the starting point for L2 speech development is the L1 sound system: L2 learners are found to be more accurate in their production of phonemes that are shared between the two languages than ones that are only present in the target language. A common assumption when it comes to second language acquisition is that children will acquire the target language to a more native-like level that adults, and this especially when it comes to pronunciation. This original L1 influence can, however, be life-long: Fossilization is a well-known concept for adult L2 learners, but as retrospective developmental studies show, even adults who began to acquire their L2 as early as 6 to 8 years of age can have a perceptible foreign accent (Paradis, 2006). Children, however, outstrip their adult counterparts when it comes to rate of phonological acquisition: After about 12 months of onset, they start acquiring phonology faster than the adults. Studies have shown that their foreign accents diminished much more rapidly after this time (ibid).

The development of the L2 lexicon is different from L1 lexical acquisition as there already exists a lexicon in the first language that the second language learner can draw upon. Harley (1992, as cited in Paradis 2006) found three phenomena characterizing L2 speakers' early, limited vocabulary: The use of non-specific verbs to describe specific actions, the use of sound symbolism and code-switching to the L1 in order to be more precise. The use of such strategies is reasonable as the communicative demands of L2 speakers after all often is in advance of what they can produce.

While language mixing generally is grammatically constrained, the question remains why bilinguals code-mix. A common assumption of bilingual children's code-mixing is that they mix their languages to fill in for gaps in their lexicons and grammars. This idea is rooted in the lexical-gap hypothesis that suggests that bilingual children mix words from one language to the other when they do not know the right word in the target language (Genesee & Nicoladis, 2006) . This form of lexical code-mixing might also be due to an uneven bilingual situation where one language is the dominant one: Genesee, Paradis, & Nicoladis

(1995) and Lanvers (2001) found evidence that bilingual children tend to mix more when using their less proficient language than their more proficient one.

2.1.8 The linguistic system of heritage language speakers

When discussing the linguistic systems of heritage language speakers it is important to bear in mind that heritage speakers are a heterogeneous group – their language competence varies immensely from individual to individual. Some might have received education in their heritage language, while others only spoke it at home; some might have only receptive knowledge of their language, while others to various degrees have productive language competence. Montrol (2010) argues that in general, heritage speakers may possess good speaking and listening capacities, native-like levels of pronunciation and fluency, and not least familiarity with the cultural norms of their heritage language and culture.

In a research review from 2010, Montrol lists the linguistic areas affected by heritage language acquisiton to include phonology, morphosyntax, syntax and vocabulary. Pronunciation is arguably the domain that is least affected as heritage speakers often have good phonology as opposed to second language learners. Rhythmical patterns and speech sounds are after all linguistic elements a child acquires very early in life. Au et. al (2002:242) found that "even incomplete language experience during childhood can have lasting benefits", and that overhearers of a language in childhood performed better phonologically than L2 learners. More research is, however, necessary to find the exact amount of language exposure needed for it to be of advantage for later language use.

There seem to be no measureable benefits regarding morphosyntax due to simply overhearing a language: Au et. al (2002) found that overhearers and late L2 learners performed virtually equally when it came to morphosyntax. And in fact, morphosyntax might be the area that is most significantly affected in heritage language grammar. Montrul (2010) explains that heritage speakers tend to produce a significant number of errors compared to L1 speakers when it comes to gender, number and case marking. She suggests that many of these

linguistic effects could be triggered by transfer from the majority language, often being English with a strict SVO word order and which does not have, for instance, overt case markings, null subjects, complex plural morphology, gender or different types of reflexive pronouns. This simplification of paradigms is a common characteristic of the language of heritage speakers. Montrul (2010) point to the, for instance, overuse of the unmarked forms of grammatical features. In sum, "heritage language speakers seem to develop some core aspects of their family language, but their grammatical systems show a marked tendency toward simplistic and overregularization of complex morphosyntactic patterns and restricted word order" (ibid:9).

It is generally accepted that the learning process of heritage speakers differs from that of non-heritage speakers in that the heritage speakers have a more subtle, implicit knowledge of the target language (Montrol 2010; Gass & Selinker 2008). Montrul (2010) argues that some heritage speakers may in fact have the cognitive and linguistic potential to acquire native-like competence in the heritage language. Most heritage speakers do, after all, have high levels of communicative competence, whilst they lack a lot of vocabulary and need to improve their grammatical accuracy in the heritage language.

2.1.9   Cross-linguistic influences

When two languages exist in the same mind, it is not unreasonable that they interact and even influence one another. The first language has always been assumed to play a role in second language acquisition. Gass and Selinker (2008) explain that L2 learners create a language system that not only consists of elements from both the first language and the target language, but also possibly by language elements that originate from neither one. This is known as interlanguage, a concept introduced by Larry Selinker in 1972, referring to the internal language system learners themselves develop based on the available linguistic data at any given time.

The very term interlanguage has been up to some debate. The concern has been that it refers to a language system that is under development, suggesting that it still is not complete. Cook (2008), along the lines of both Grosjean (2010) and Meisel (2006), emphasizes that learners have the right to be judged by standards appropriate for them and not by those used for L1 speakers. The idea that a complete language system is one that equals a native speaker might thus be another example of a monolingual bias in linguistics. Cook (2008) emphasizes the importance of acknowledging the L2 learners' different language systems as equal to the language system of a native speaker. Even if they are not native in the target language, or will ever become so, L2 language systems should be acknowledged. An alternative, more objective term to interlangauge can be L2 grammar.

Cook (2008) introduced the concept of Multi-competence, which refers to the knowledge of two languages in the same mind. Even if it is only a first language and a form of interlanguage, there is still need for a term to cover the overall language knowledge of a bilingual. The central idea of multi-competence is that the languages of a bilingual influence one another. Not only is the L2 speaker's knowledge of the target language not the same as an L1 speaker's knowledge of the same language, but the second language also influences the first language of the L2 learner, and thus making the L2 learner's knowledge of his or her first language slightly different from a monolingual's knowledge of the same language. Cross-linguistic influence, according to Cook (2008), is not a one-way street.

Cross-linguistic influence is a relatively new term, introduced by Kellerman and Sharwood Smith in 1989 as a reaction to the debate raised by Corder in 1983 about the terms used to describe this phenomenon of cross-linguistic influences (Gass & Selinker, 2008). Corder felt that the terms linguistic transfer and especially interference were too bound to the theories from which they originated. According to Kellerman and Sharwood Smith (1989, as cited in Gass & Selinker 2008), the term cross-linguistic influences should be broad enough to

include all the notions of transfer, but also avoidance, language loss and rate of learning.

Avoidance is a common feature of L2 behavior, which has to do with which structures of a language the L2 learner produces and which he or she does not (Gass & Selinker, 2008; Schachter, 1974). Gass and Selinker (2008) show to studies by Kleinman (1977) when they suggest that language learners in fact might know a given structure of the language, but for some reason avoid producing it. Reasons for this might be differences between the L1 and the target language, but it might very well also be due the complexity of the target language itself: Dagut and Laufer in a study from 1985 (as cited in Gass & Selinker 2008) found that Hebrew-speaking learners of English seemed to prefer simpler one-word equivalents (enter, confuse) of phrasal verbs (come in, mix up).

A similar learner strategy is overgeneralization of grammatical features that are found in in both languages, but used under different contexts in the two languages. Döpke (2000, as cited in Gass & Selinker, 2008), for instance, found that German-English bilingual children were prone to overgeneralize –VO word order in their German because this word order is an overlapping feature found in both languages whereas –OV word order only occurs in a limited number of subordinate German clauses.

According to Genesee and Nicoladis (2006), language dominance can be a factor in cross-linguistic influence. Although dominance alone cannot explain all manifestations of cross-linguistic influence, children are more likely to transfer linguistic structures from their dominant language to their non-dominant language. A study conducted by Argyri and Sorace (2007) found evidence for this. They found that a bilingual's degree of input in their two languages played a role in determining the likelihood of cross-linguistic influence and also the directionality of this transfer. Data from their study showed that in English-Greek bilinguals, cross-linguistic effects occurred mostly from the dominant language, English, to the less dominant one, Greek, than vice versa.

2.1.10 Cognitive changes in the bilingual brain

Research has documented many cognitive advantages for bilinguals. These include executive control, cognitive flexibility, linguistic creativity, conflict processing and problem solving (Bialystok, 2011; Bialystok, Craik, & Luk, 2008; Costa, Hernández, Costa-Faidella, & Sebastian-Galles, 2009).

The main empirical finding for cognitive advantages a bilingual experience leads to is in the evidence for enhanced executive control. Bialystok (2011) explains that both languages of a bilingual are active, even in strongly monolingual contexts, which creates a continuous interference that leads to the need for attention control that is unique for bilinguals. Because of this, selective attention is a feature that develops faster in bilingual minds compared to monolingual counterparts, which again leads to advantages when it comes to problem-solving and information management in the brain (Bialystok, 1999, 2001).

These advantages are also shown to persist over the whole life span. There has lately been growing interest in the research on cognitive reserve: Studies have demonstrated a significant delay in the onset of dementia symptoms for life-long bilinguals (Bialystok, 2011).

Whether these findings are true for all bilingual circumstances remains uncertain. Most research on the cognitive benefits of bilingualism is done on more or less balanced bilinguals, and the question remains how, for instance, heritage language bilingualism affects cognitive development. Lauchlan, Parisi, and Fadda (2012) problematize this fact that most research on cognitive advantages is done on bilinguals speaking two large, majority languages such as English and French. They see the need for similar studies to be conducted on more uneven types of bilinguals where one of the languages is a smaller minority language. One of the arguments for this is that nowadays when there is much focus on revitalizing minority languages, it seems essential to cast light on the possibility of cognitive advantages also in question here.

Lauchlan et al. (2012) conducted studies on bilingualism in Sardinia and Scotland, where the aim was to explore the cognitive benefits of speaking a minority language. They administered four cognitive ability tests on cognitive control, problem solving, metalinguistic awareness and working memory. They found that the bilingual groups of both Italian-Sardinian and English-Gaelic bilinguals overall scored better than the monolingual Italian and English speakers in all test. Furthermore, the Scottish bilinguals did better than the Sardinian bilinguals, suggesting that language environment and context is a decisive factor, as well. Lauchlan and colleagues (2012) explain that while Gaelic has a strong formal and legal status in Scotland, Sardinian bilinguals do not receive any formal education in their minority language; Sardinian has mostly an oral tradition. This also lends an argument to the role of quality of input in bilingual situations. Regardless, the results represent clear evidence that there are cognitive advantages also for speakers of a minority language.

2.2   Lule Sami grammar

The Sami languages belong to the Uralic family of languages, sharing a common origin with the Finnish, Hungarian and Estonian languages. A Sami-Finno protolanguage existed about 4000 years ago from whence proto-Sami and proto-Finnish developed. Today's Sami languages developed from this proto-Sami language about 1000 years ago (Svonni, 2004). A common assumption about the Sami languages is that they resemble Finnish, and to some extent they do, but Sammallahti (1998) explains that the Sami languages differ from Finnish in a number of features: He emphasizes the vowel system that has undergone a radical reorganization, morphological features like the dual number in personal pronouns and possessive suffixes, and he points to grade alternations that in Sami include all the consonants whereas in Finnish only the stops alternate. Furthermore, the Sami dual and plural personal endings are different in the present and past tenses and Sami lacks the external local cases (see Sammallahti 1998 for more information).

The ten Sami languages are South Sami, Ume Sami, Pite Sami, Lule Sami, North Sami, Inari Sami, Skolt Sami, Akkala Sami, Kildin Sami and Ter Sami. See figure 2.1 for an overview of the geography of these languages.

Figure 2.1 | Map over the Sami languages
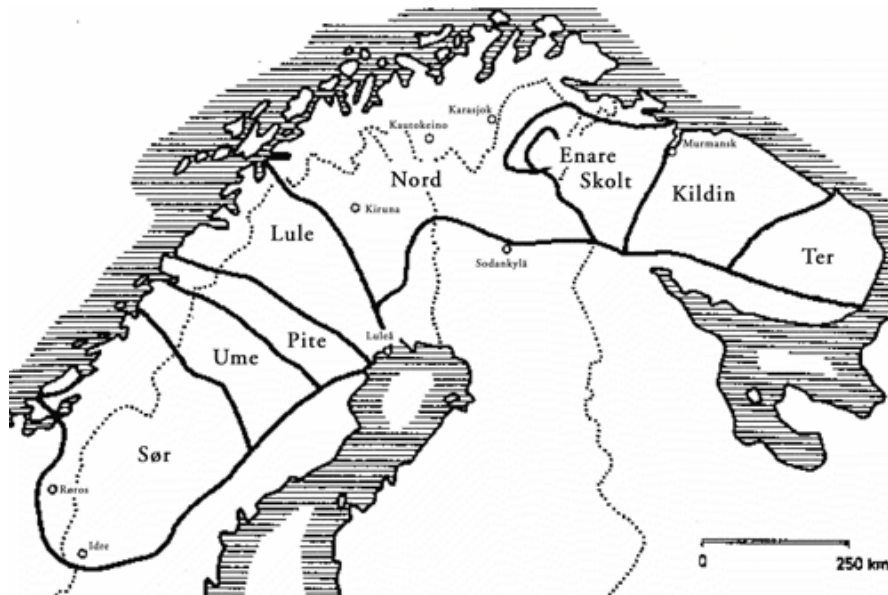
(St.meld. nr. 28 (2007-2008))

According to Sammallahti (1998) there are no deep linguistic boundaries between the Sami languages, and they are fairly similar in both grammatical structure and basic vocabulary. Yet they differ from one another to at least the same degree as the Germanic or the Romance languages.

Kintel (2001) divides Lule Sami into several dialects in Norway and Sweden, with Divte-Lule Sami being the dialect spoken in Norway and the one investigated in this thesis.

This thesis focuses on three grammatical features, namely consonant gradation, the grammatical synonymy between locative cases and locative adpositions and the use of personal pronouns marked for dual. These grammatical features are presented in more detail in the sections that follow below. A brief comparison with Norwegian grammar is also given.

2.2.1 Consonant gradation

Sami words have one or more stress groups containing at least one stressed
syllable that can be followed by one or two unstressed syllables. The consonants
between the vowels in the stressed syllable and the following syllable are called
the consonant center and these are the consonants that alternate in the inflection
of verbs, nouns and adjectives (Nickel & Sammallahti, 2011; Nystø & Johnsen,
2001; Sammallahti, 1998). This study focuses on nouns only, therefore only
nouns will be presented in this section.

An example of consonant gradation for two regular Lule Sami nouns is given in
(2.1) below. The consonant center is marked with bold.

(2.1)	*Ståvllå* 'chair'	*Goahte* 'house'
Nom. Sg.	*Stå**vll**å*	*Goa**hte***
Gen. Sg.	*Stå**vl**å*	*Goa**de***

The alternation of the consonant center can involve consonant quantity, quality
and both quality and quantity. Bals (2004) has studied North-Sami grade
alternation and she explains that it is a complex process connected to
morphology; nothing in the phonological environment triggers this alternation.

There are three different consonant quantities, or consonant lengths: Quantity I
or short consonant lengths; quantity II, or long consonant lengths; and quantity
II or overlong consonant lengths (ibid). The terms strong grade and weak grade
are also used to explain consonant gradation, referring to quantity I consonant
clusters as being in a weak grade, and quantity II and III being in stronger grades
respectively. See (2.2) below for an overview.

(2.2) Overlong – QIII   Long – QII   Short – QI

l'l   ll   l

m'm   mm   m

ppt   pt

hkk   hk   g

                           dd   tt

strong grade   weak grade

Quantitative consonant alternation involves the number of consonants. When conjugating the noun *jávrre* 'lake' from its nominative form to the genitive, the consonant center alternates from *vrr* to *vr*. Qualitative alternations involve a change of consonant quality, such as in the noun *jiegge* 'swamp' where the consonant center *gg* alternates to *kk* in the genitive form. The third type of alternations includes both the consonant quantity and quality. In the noun *báhko* 'word' the consonant center *hk* alternates to *g*. See (2.3) for an illustration.

(2.3)   Overlong – QIII   Long – QII   Short – QI

Quant. alt.   *jávrre* vrr   *jávre* vr

Qual. alt.   *jiegge* gg   *jiekke* kk

Both alt.   *báhko* hk   *bágo* g

strong grade   weak grade

Lule Sami grade alternations are not always marked in orthography. The alternation between overlong and long consonant lengths are often marked the same way in orthography even if there is a quantitative difference between the two forms. See, for instance, the word *gålle* 'gold' where in writing the consonant center is marked with *ll* in both it's nominative and genitive forms, but where there nevertheless is a quantitative duration difference between the forms heard in pronunciation. The overlong form is often marked with an apostrophe in descriptive grammars, such as *l'l* and *m'm* in (2.2)

Lule Sami grade alternation does not include only consonants, but also vowel alternations occur, entailing umlaut. The changes in vowel length are not always marked in orthography either.

There are differing views on whether Sami consonant gradation involves weakening or strengthening morphology. North Sami scholars argue for a strengthening gradation as the weak grade is supposedly the underlying form (Bals, 2004; Bals Baal, Odden, & Rice, 2012; Svenonius, 2008). Morén-Duolljá (2013, in preparation) however, argues that there are problems in analyzing Lule Sami as involving only one type of consonant gradation and that a strengthening gradation analysis runs into empirical difficulties. Instead, he describes Lule Sami as having three types of consonant gradation patterns. One involves weakening morphology that triggers a stepwise alternation from QII to QIII and QII to QI. In addition, there is a Q3 strengthening morphology that triggers alternation from QI to QIII and QII to QIII. Finally, Lule Sami also has morphology that does not involve consonant gradation at all. This combination of no-change morphology, weakening morphology and Q3 morphology is adopted in this thesis.

In traditional descriptive grammars, Lule Sami nouns are divided into three main groups, and consonant gradation supposedly occurs according to a given set of rules based on what group any given word belongs to (Nystø & Johnsen, 2001; Spiik, 1989). This traditional organization might at first glance look straightforward, but when adopting the three types of gradation patterns proposed by Morén-Duollja it becomes clear that the traditional grammars do not explain all the intricacies of consonant gradation. This division is nevertheless also adopted in this thesis as this will be familiar for people familiar to the Lule Sami language

The three groups are even syllable nouns, odd syllable nouns and contracted nouns. Even syllable nouns have an even number of syllables in their genitive singular form and the consonant center alternates from a stronger grade in the nominative form to a weaker grade in the genitive form (Spiik, 1989). Most even

syllable nouns involve a stepwise weakening morphology and alternate from QIII to QII, or from QII to QI. An example is given in (2.4) below.

(2.4) Nom.sg. *bievdde* 'table' vdd QIII
       Gen.sg. *bievde* 'tables' vd QII

The nominative, illativ and essive case forms are in a strong grade, while the others are in a weak grade (Spiik, 1989). Not all even syllable nouns involve a weakening morphology, some involve Q3 strengthening morphology. Other even syllable nouns do not alternate at all.

Odd syllable nouns have an odd number of syllables in their genitive singular form and according to traditional descriptive grammars the consonant center alternates from a weaker grade in the nominative form to a stronger grade in the genitive form. If a stepwise weakening morphology is assumed, however, the underlying representation must be the strong grade form, i.e. the genitive form, since the alternation necessarily involves weakening morphology.

Odd syllable nouns alternate from QII to QI or from QIII to QII. An example is given in (2.5) below.

(2.5) Nom.sg. *riebij* 'fox' b QI
       Gen.sg. *riehpiha* 'foxes' hp QII

Only the nominative form and the essive form are in a weak grade, the rest of the case forms are in the strong grade. Some odd syllable words have no consonant gradation at all (Spiik, 1989).

Contracted nouns also have an even number of syllables, but they have a Q3 strengthening morphology. The consonants alter not only from a weaker to a stronger grade, but to the very strongest grade; the consonant center alternates either from Quantity I to Quantity III, or from Quantity II to Quantity III.

The genitive singular form is always in the strongest grade. An example is given in (2.6) below.

(2.6) Nom.sg.   *suoloj* 'island'   l   QI
       Gen.sg.   *suollu* 'islands'   l'l   QIII

Contracted nouns have three basic subclasses with specific suffixes in their nominative form: -es, -oj or -åj (Spiik, 1989). According to Morén-Duolljá (2013), nouns with–oj/-åj suffixes have been sociolinguistically unstable for several generations, i.e. they are prone to paradigm leveling and loss of the nominative singular form.

According to Svenonius (2008), knowing how to create a weak/strong pair of a given Sami word is part of the grammatical competence of a Sami speaker. To know the directionality of the alternation one must know which is the underlying form, but to pinpoint exactly which form is closer to the underlying representation in language where little research has been conducted might be difficult as there are very little data to settle the matter. He suggests that the question of markedness could be a clue in deciding this, or the order of acquisition, but he finally concludes that it is the weak grade that is the underlying representation in North Sami as it is more common for morphology to be essentially additive.

When it comes to Lule Sami, following the combination of no-change, weakening and Q3 morphology, as discussed in Morén-Duolljá (2013, in preparation), one needs to compare the genitive singular and nominative singular forms to know what lexical class a noun belongs to and thus what its underlying representation is. For instance, when there is a QI~QII alternation, the underlying representation must be QII (i.e. strong) since the alternation necessarily involves weakening morphology. When there is a QI~QIII alternation, the underlying representation must be QI (i.e. weak) since the alternation necessarily involves Q3 strengthening morphology. Some QII~QIII alternations are ambiguous

between involving weakening or Q3 morphology. However, there is sometimes independent and/or comparative evidence showing that it is one or the other.

Bals (2004) argues that North-Sami children acquire quantitative alternations before qualitative alternations, suggesting quantitative alternations are the least marked consonant gradation feature. A goal of this study is therefore to find whether this is true for Lule Sami, as well.

2.2.2 Grammar of spatial expressions

In Lule Sami there are two ways to express spatial relations, namely by the means of a locative case or a locative adposition. Klavan (2012) calls this alternation between a synthetic case construction and an analytic adpositional construction an instance of grammatical synonymy. Such synonymy is found in every language, and even though curious since languages are at the same time said to be economical, Klavan (2012) suggests that if two linguistic units seem to express one and the same function, they do it in different ways, allowing for different a construal for the same situation. The alternations between the two spatial constructions in question are therefore not expected to be in free variation.

Compared to other languages within the Uralic language family, the Sami languages have a low number of cases (Kittilä & Ylikoski, 2011). Lule Sami has 8 regular case forms. They are presented in (2.7).

(2.7)   *goahte* (house)

	SG.	PL.
Nominative	*Goahte*	*Goade*
Genitive	*Goade*	*Gådij*
Accusative	*Goadev*	*Gådijt*
Illative (LAT)	*Goahtáj*	*Gådijda*
Inessive (LOC)	*Goaden*	*Gådijn*
Elative (SEP)	*Goades*	*Gådijs*
Comitative	*Gådijn*	*Gådijn*
Essiv	*Goahten*	-

Three of these are local cases: The location case of inessive has a general meaning of "in", "on" and "at"; the lative case of illative has a general meaning of "to"; and the separative case of elative has a general meaning of "from" and "off". See (2.8), (2.9) and (2.10) for examples of each case forms:

(2.8)   Location
        Anne le goaden
        Anne is house.INES
        Anne is inside the house

(2.9)   Lative
        Anne goahtáj viehká
        Anne house.ILL run
        Anne runs to the house

(2.10) Separative
        Anne ålgus boahtá goades
        Anne out come house.ELAT
        Anne comes out of the house

The locative cases do not carry only spatial meanings, but cover a wide array of expressions. The focus of this thesis is, however, on their spatial meanings, therefore these other expressions will not be dealt with here.

Lule Sami adpositions include prepositions, postpositions, and ambipositions that are adpositions that can function as both pre- and postpositions. Postpositions are the most common in Sámi languages. Sami adpositions are not particles like in Germanic languages, but were originally nouns inflected for case. Some of these nouns are hardly ever used as regular nouns any more, but have become frozen in specific cases and are therefore only used as adpositions (Nickel, 1990). Svenonius (2007), in an article on North Sami adposition, argues that it is no longer reasonable to claim that these adpositions are simply frozen

nouns, but rather that most of them have in fact become a separate class of words.

There are a number of spatial adpositions in Lule Sami. Most of them have three forms, corresponding to the location, lative and separative cases. See (2.11) below:

(2.11)   LOC   LAT   SEP
          Duohke   *Duohkáj*   *Duoges*   'behind'
          Vuolle   *Vuolláj*   *Vuoles*   'under'
          Guorra   *Guorraj*   *Guoras*   'beside'
          Sadje   *Sadjáj*   *Sajes*   'instead of'

There are two postpositional expressions that not only have this tripartite nature, but that in addition seem to correspond quite exactly to the locative cases in meaning. These are illustrated in (2.12):

(2.12) LOC   LAT   SEP
       Nanna 'on, at'   *Nali* 'onto'   *Nalta* 'off from'
       Sinna 'in'   *Sisi* 'into'   *Sissta* 'from inside'

Both locative cases and spatial adpositions can be used to describe a given spatial relation. See the examples in (2.13) below:

(2.13) Inessive case   Adposition *sinna* 'in'
       Ieddne le goaden   *ieddne le goade sinna*
       mother is house.INES   mother is house.GEN in
       Mother is in the house   Mother is in the house

It is not very clear when the case construction would be chosen over the adpositional one and vice versa, but the common assumption in linguistic research is that postpositions give a more exact reading than case, which also Sami grammars confirm (Kittilä & Ylikoski, 2011; Lyons, 1968; Nickel, 1990;

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Spiik, 1989; Tuolja & Kuoljok, 1999). Nystø and Johnsen (2001), however, simply state that sometimes postpositions are used over case suffixes, suggesting that there is not such a big difference between the two spatial expressions. The examples they present, however, are on static locations only, indicating that it might only be when it comes to static locations that case constructions and adpositional constructions correspond.

What seems to be clear is that there is a difference between spatial relations of static location on the one hand and spatial relations of directed motion on the other. Case constructions and adpositional constructions that express a static location seem to carry the same meaning because they both code only location alone, as can be seen in (2.14):

(2.14) Inessive case   Adposition *sinna* 'in'
   Siri bijlan tjåhkkåj   *Siri bijla sinna tjåhkkåj*
   Siri car.INES sit   Siri car in sit
   Siri sits in the car   Siri sits in the car

Constructions involving directed motion, on the other hand, seem to differ. Here postposition constructions are more exact in that they code both location and directed motion. The case forms only code motion to or from, as can be seen in the examples in (2.15), while the postpositional construction codes the end-points of the motion, as well.

(2.15) Illative case   Adposition *sisi* 'into'
   Siri bijllaj manáj   *Siri bijla sisi manáj*
   Siri car.ILL went   Siri car into went
   Siri went to the car   Siri went into the car

In her study on Estonian spatial expressions, Klavan (2012) looked at two locative constructions that express the same spatial relation. She examined 11 semantic and 9 morphosyntactic variables that might influence the grammatical alternation between the locative adessive case and locative adposition peal 'on'.

Klavan (2012) explains that these variables were chosen on the basis of the results of the few earlier studies on this alternation phenomena conducted in other Finno-Ugric languages like Sami and Finnish. Variables were also chosen on the basis of other alternation phenomena discussed in the numerous studies on for instance the English dative and genitive alternation and on particle placement in English. Only a few of these were found to play a role in the alternation. See (2.17) below for an overview of the contextual conditions Klavan investigated in her dissertation.

(2.17) a. The adessive construction [case] tends to be used with:
- o   morphologically complex and long noun phrases as Landmarks (e.g. kirjutuslaud 'writing-desk');
- o   static places as Landmarks (e.g. turg 'market');
- o   Landmarks that are bigger than Trajectors;

b. The peal-construction [PP] tends to be used with:
- o   short and simple noun phrases, especially with pronouns (e.g. see 'this');
- o   small, mobile things as Landmarks (e.g. kapp 'wardrobe');
- o   Landmarks that are of the same size as Trajectors;
- o   verbs of existence (e.g. vaas on laua peal 'the vase is on the table').

According to Klavan (2012), these results confirm the findings of both the earlier studies conducted in Sami and Finnish, but also the general claims that cases are more abstract and express a more frequent spatial relation than adpositions.

Due to the scope of this study, only a handful of the variables above have been chosen for investigation. The variables were chosen on the background of the aforementioned study by Klavan, a study by Kittilä and Ylikoski (2011) on the coding of the semantic roles of goal, recipient and vicinal goal in Uralic languages, and on the basis of my own native intuition. See (2.18) below for an overview of the contextual conditions.

(2.18) a. Case constructions will tend to be used with:

- o boundary-crossing verbs;
- o common, well known relation between TR and LM;
- o a big distance between TR and LM;

    b. PP constructions will tend to be used with:

- o unusual relation between TR and LM;
- o a short distance between TR and LM

2.2.3 Personal pronouns marked for dual

Lule Sami personal pronouns are marked for dual in addition to singular and plural. See (2.19) for an overview of Lule Sami personal pronouns.

(2.19)	Singular	Dual	Plural
1. person	*Mån* 'I'	*Måj* 'we two'	*Mij* 'we'
2. person	*Dån* 'you'	*Dåj* 'you two'	*Dij* 'you all'
3. person	*Sån* 'he'/'she'	*Såj* 'they two'	*Sij* 'they'

Dual marking might be a somewhat curious feature of Lule Sami, as very few other languages have retained this specific grammatical category. Finnish, for instance, is the language that the Sami languages are most often are compared to, and while all the Sami languages have retained this dual form, Finnish on the other hand has not (Sammallahti, 1998). Other European languages have had a dual marker from old as well, but it has remained only in very few of today's languages.

Both Lule Sami nouns and verbs are inflected for number, but while nouns only have singular and plural forms, the verbs are inflected for dual as well. Tuolja and Kuoljok (1999) explain that it is not clear whether the dual marker in verb inflection is used under all circumstances. Some people, they claim, will divide between animate and inanimate subjects, not using the dual marker with inanimate subjects, and some would even avoid inflecting the verb for dual when the subject is an animal.

The dual marker is considered to be an endangered feature in Lule Sami language. An tendency in L2 speech, especially, is overgeneralization of the plural marker, which also affects verb inflection and causes a simplification of the verb paradigm.

Children acquire general cognitive categories before specific categories. According to Gass and Selinker (2008), children will acquire the least marked forms before marked ones. For instance are content words acquired before functional categories such as articles, prepositions and grammatical suffixes. When it comes to grammatical number, the singular and plural are the more general categories, whereas the dual marker may be counted as a specific category that will be acquired later in learning.

2.2.4 Brief comparison with Norwegian grammar

Consonant gradation does not exist in Norwegian. Norwegian, and other Scandinavian languages, however, are quantity languages where both vowel and consonant duration is a phonological feature of language (Lidestam, 2009; Rice, 2006). Lidestam (2009) explains that in Swedish, the length of a given vowel in the same phoneme combination might form different words. The result of this, he argues, is that speech processing is more complex in that it may require particular skills in the identification of vowel duration as opposed to non-quantity languages.

Spatial relations are coded by prepositions only in Norwegian. Most Lule Sami adpositions are postpositions, and there is thus a difference in surface structure when it comes to Norwegian and Lule Sami adpositional constructions.

Personal pronouns are marked for singular and plural only in Norwegian.

2.3   Hypotheses and expected findings

The aim of this study is to investigate the grammatical competence of Lule Sami speakers. The focus is on consonant gradation, the grammar of spatial expressions, and personal pronouns marked for dual. There are three main hypotheses.

Grade alternation

1. The most proficient speakers will perform better.
   a. Participants will perform better on even syllable non-words.
      i. Of these, they will perform better on quantitative grade alternations.
   b. Participants will perform worse on odd syllable and contracted non-words.
      i. Contracted non-words with –oj/–åj suffixes in the nominative form will not be alternated, the genitive form will be used where the nominative one would be expected.

Grammar of spatial expressions

2. The distribution of case and postpositional constructions will depend on context and on certain contextual conditions.
   a. In cases with pure static locations, the inessiv case and the postpositions nanna 'on' and sinna 'in' will very much be used to the same degree
   b. Case constructions will be preferred under the following contextual conditions:
      i. Boundary crossing verbs
      ii. Trajectors that are far away from the landmark
      iii. Common, usual relation between trajector and landmark
   c. Adpositional constructions will be preferred under following contextual conditions:
      i. Where the relationship between the landmark and the trajector is "uncommon" or unusual.
      ii. A short distance between trajector and landmark

d. The performance of the L2-speakers will differ from that of the L1-speakers in that the former will prefer constructions with adpositions instead of case constructions because of transfer from L1

Personal pronouns marked for dual

3. There will be differences between L1 and L2 group performance. Only the most proficient speakers will use the expected personal pronoun markings.

    a. L2-speakers will overgeneralize the use of personal pronouns marked in plural due to transfer from Norwegian.

    b. L1-speakers will use the expected personal pronouns.

3   Method

3.1   Research design

An experimental study was carried out in order to investigate the hypotheses. A written battery of tests consisting of a Wug test, a Cloze test and a Grammaticality Judgment Task was organized to gather data about the aforementioned grammatical features.

The data collection took place in Ájluokta/Drag in Divtasvuodna/Tysfjord.

3.2   Participants

There were altogether 34 participants in this study, 9 female and 25 male. The participants were divided into three groups: An adult control group consisting of Lule Sami L1 speakers and two experimental groups consisting of young Lule Sami L1 and L2 speakers. There were 11 participants in the control group (age range 21-60; mean age 32), 8 participants in the L1 group (age range 10-19; mean age 14), and 15 in the L2 group (age range 10-19; mean age 14). The participants in the L1 and L2 group were students in middle school, junior high and high school.

Age wise the participants were treated as one group even if there both in the L1 and L2 group is as much as 9 years between the youngest and oldest participant. It would have been interesting to analyze the results based on age groups, as well, but due to the scope of this study, this was not done. Since all the participants were at least 10 years old, they could be treated as one group: In a study on idiom comprehension Vulchanova, Vulchanov, and Stankova (2011) found that the age of 10 is a turning point in idiomatic knowledge in L1 Bulgarian. Children around 10 years of age displayed advanced linguistic skills and were comparable to the adult group as opposed to children only 6 and 7 years old. See also Benelli, Belacchi, Gini, and Lugangeli (2006) for evidence that 10 and 11 year of age is a turning point on acquiring adult-like skills.

The participants were recruited through their schools and through my own personal network. The Lule Sami language environment is small, and I therefore had the advantage of knowing many of the participants beforehand, making it easier to recruit participants for the study. The small language environment is also the cause of the low number of participants.

The project was reported to the Norwegian Social Science Data Services (NSD). All participants consented to participate in the study, and a parental consent form was collected for the participants under the age of 18. Along with the consent forms, the participants were asked to fill in a language background questionnaire.

3.3   Tests and materials

The test and materials are presented in this section.

Wug test

Jane Berko first developed the Wug Test in 1958 to test children's acquisition of the plural and other inflectional morphemes in English-speaking children. Nonsense materials were the key to this test and the assumption was that if the child could supply the correct plural ending of a given non-word created according to the phonological rules for English nouns, then he or she had internalized a working system on how English nouns behave and is able to generalize these for the handling of new ones (Berko, 2004). Since its debut in 1958 the Wug test has been a popular tool for investigating children's knowledge of morphological rules.

A Wug test was developed for this study in order to investigate consonant gradation. The Wug test consisted of 30 non-words conforming to Lule Sami phonology and orthography. More specifically the non-words were constructed to conform to Lule Sami nouns: 18 of these were constructed to conform to even syllable non-word nouns; 5 were constructed to conform to odd syllable non-word nouns; and 7 were constructed to conform to contracted non-word nouns.

The majority of the non-words were even syllable ones because these are the most frequent, and also because the hypothesis was that these would be least marked. Three types of even syllable non-words were constructed: 8 non-words conforming to non-words with quantitative alterations, 8 with only qualitative alterations and 2 with both types of alterations. Two types of contracted non-words were constructed: 5 of them conforming to have –oj/-åj endings, and 2 of them -es endings.

A challenge in the creating of the nonsense materials was the struggle to create non-word that clearly would fall into a specific lexical class. This is, however, very difficult. In fact, it may be near impossible as the nature of Lule Sami morphophonological characteristics is so complicated. Strictly speaking a given non-word could belong to any of the three lexical classes. Nevertheless, as far as possible, non-words conforming to these lexical classes were created. See (3.1) below for examples of non-words.

(3.1)	Even syllable	Odd syllable	Contracted
Nom. Sg.	*Viebbma*	*Viegar*	*Guoloj*
Gen. Sg.	*Viebma*	*Viehkara*	*Guollo*
Alternation	*bbm – bm* (III-II)	*g – hk* (I-II)	*l – l'l* (I-III)

In the original Wug test, pictures to represent the non-words were drawn on cards following a text where the desired word was omitted. The cards were then shown to the subjects, the text read aloud and the subjects were to fill in the omitted word. In this current study, due to time and space considerations, a written Wug test was conducted. The items followed the same pattern as in Berko's original test, the only difference was that the participants had to read the text themselves and then fill in the omitted word in writing. See figure 3.1 for an example of a test item.

Figure 3.1 | Example of a test item in the Wug test

Dát la akta sjoagge. 'This is a sjoagge.'
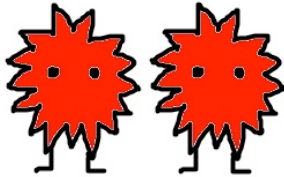
Dála la ájn akta. 'Here is another one.'
La guokta dajs. 'There are two of them.'
Dá li guokta _____. 'There are two _____.'

The non-words were given in the strong grade form of the word (i.e. the nominative form for even syllable non-words and the genitive form for the odd syllable and contracted ones). The test item above is with an even syllable non-word. The singular genitive form and the plural nominative form has the same exact form in Lulesami nouns.

An important issue when creating the non-words was to avoid non-words that might entail vowel changes. Non-words that might entail umlaut were deliberately avoided since the main interest in this study is the behavior of the consonant centers.

There were no distractors in this test. The nature of the non-words created two types of test items as the items for the odd syllable and contracted non-words differed from the even syllable form. In addition, the Wug test and the Cloze test were in the same questionnaire making the different test items distractors for each other.

Cloze test

The Cloze test was first described by W. L. Taylor in 1953. Seliger and Shohamy (1989) explain that in a Cloze tests subjects are presented with a written text from which a part is omitted. The participants are then expected to fill in the missing part. Cloze tests are widely used for testing reading, writing and overall language proficiency.

A Cloze test was developed for this study in order to investigate the grammar of spatial expressions and the use of personal pronouns marked for dual. The Cloze test consisted of 42 items; 32 for the grammatical synonymy part and 10 for the dual part. The items consisted of a picture and a sentence with an omitted word.

The items for the case and adpositions part consisted of pictures of a spatial relation and a sentence with an omitted word to be filled in with the expected noun, either conjugated for case or accompanied by a postposition. See figure 3.2 for an example of a test item.

Figure 3.2 | Example of a test item in the Cloze test

Gånnå le bena? 'Where is the dog?'
Bena le _____. 'The dog is ____.'

According to the hypotheses, three kinds of test items were constructed: 8 items consisted of spatial relations where none of the constructions were assumed to be preferred, but where it was more or less was optional to chose either construction. 8 items consisted of spatial relations where case constructions were expected to be preferred, and the last 8 where adposition constructions were expected to prevail. Another 8 of the items were distractor sentences that demanded either a case construction or a construction with a postposition. Table

3.2 gives an overview of the three types of spatial relations and the variables that are expected to influence the use of either construction.

Table 3.1 | Contextual conditions for choice of spatial expressions

Group 1 'optional'	Group 2 'Case'	Group 3 'PP'
No subgroups	a) Large distance b/w TR and LM	a) Close distance b/w TR and LM
	b) Boundary-crossing verb	b) "Unusual" relation b/w TR and LM
	c) "Usual" relation b/w TR and LM	

a. Abbreviations: TR = trajector, LM = land mark.

An issue that proved to be a challenge in developing the test materials was creating items with all three types of spatial relations The majority of the test items consist of spatial relations that involve static locations, and only a few are spatial relations involving directed motion. This is simply due to practicality, as it is difficult to create still pictures that involve some kind of motion.

The items for the dual marking part consisted of pictures with two or three people performing an activity followed by two sentences of which the last consisted of an omitted word to be filled in with the correct personal pronoun. See figure 3.3 for an example of a test item.

Figure 3.3 | Example of a test item in the Cloze test

Gáhti ja Ánndi libá ålggon. _____ tjuojggaba.
'Gáhti and Ánndi are outside. __ are skiing.'

There were 6 items where the correct personal pronoun was expected to be marked for dual and 4 items where it was expected to be marked for plural.

Grammaticality Judgment Task

Selinger and Shohamy (1989) explain that the grammaticality judgment task is an elicitation technique where subjects are presented with correct and incorrect language items that they are to react to, rating the items as acceptable or unacceptable. Grammaticality judgment tasks (GJT) are widely used to test the metalinguistic abilities of language learners.

A GJT was designed to examine the participants' assessment of grammaticality when it comes to the grammar of spatial expressions and the use of personal pronouns marked for dual. The task consisted of 48 items, 32 belonging to the grammatical synonymy part and 16 for the dual part.

The items for the case and adpositions part consisted of pictures of a given spatial relation along with sentences that described the given spatial relation in the picture. Three types of test items were created, based on the same variables as in the Cloze test. See table 3.1 for an overview of these variables.

The items for the dual part consisted of pictures of either two or three people performing an activity along with a sentence describing that given activity with a personal pronoun marked for the correct or incorrect number. There were two main types of items: The first type consisted of 8 items where the number of people in the picture and the number of people referred to in the text did not match. The second type consisted of 8 items where there the subject and the verb were not congruent. See table 3.3 for an overview of these.

Table 3.2 | Types of test items in the GJT dual part

Type 1		Type 2	
a. 4 distractor items	2 correct dual	8 items without agreement between subject and verb	a. 3 dl. subj w/pl. verb
	2 correct plural		
b. 4 test items	4 dual picture w/ plural text		b. 5 pl .subj. w/dl. verb

The participants were asked to rate the items as 1 'a good sentence', as 2 'a weird sentence, but I can still say it', or as 3 'a bad sentence'.. They were also given the opportunity to note what each in anything was ungrammatical for any given sentence. See figure 3.4 for an example of a test item expected to be judged as good.

Figure 3.4 | Example of a "good" test item

Æhppala li båksa. 'The apples are in the box'.   1   2   3

                                                                    Buorre   *OK*   *Nievrre*

_____   'Good'   'OK'   'Bad'

See figure 3.5 for test items expected to be judged as bad, or acceptable only.

Figure 3.5 | Example of a "bad" test item

Dållå vuoná sinna buollá. 'The fire burns inside the oven.'

3.4   Procedure

The first step in preparing the test battery was to create the test items. For the Wug test this meant creating the non-words conforming to Lule Sami orthography and phonology; for the grammatical synonymy part it meant deciding on variables that might influence the uses of the two types of spatial constructions; and for the dual part creating items consisting of personal pronouns marked for either dual or plural.

When the test battery was prepared it was run through rounds of pilot testing in order to assure the quality of the tests. Seliger and Shohamy (1989) explain that that reliability and validity are the two most important criteria for assuring the quality of the data collection procedures. Not only does a pilot testing compute the reliability and validity of the tests in question, but it also gives valuable information on the practical aspects of the tests, such as the time is takes to administer them and the clarity of the instructions. The main goal of the pilot testing was to check that the non-words did indeed conformed to Lule Sami grammatical rules and that the pictures used in the Cloze test made sense.

The data collection was carried out in classrooms for the students and in private homes and work places for the adults. The tests were thoroughly explained to the participants before they embarked on them. The control group completed both tests without taking a break in between them, while some of the students had a longer break between the two tests due to short classes. The L1 speakers had a double class (90 min) to complete the tests, while the L2 speakers had two separate blocks of 45. Forty-five minutes was not enough time to complete both tests; they finished the first one during the first class, had a break and left the second one for the later class.

3.5   Data coding and analyses

After the data collection the data was converted into numerical form and coded into data sheets in Microsoft Excel. The initial coding in Excel was meant to facilitate further statistical analysis in SPSS. Separate data sets for each test were

created and each individual score was registered. For the Wug test, a score of 1 was given for the expected non-word, a score of 0,5 was given when only the grade alternation in isolation was as expected, but not the whole word form, and a score of 0 was given when not even the grade alternation was as expected. For the two parts of the Cloze test, the scores were registered in two separate data sheets: One registering the scores for case constructions and one registering the scores for PP constructions. A score of 1 was given when the construction to be registered in that particular data sheet was chosen and 0 for the other. The same was done for the dual part. For the GJT the results were registered onto different datasheets giving a score of 1 for the given rating to be registered in the datasheets.

The data sheets were then transferred into SPSS for statistical analysis. The intention was to determine whether there were any significant differences between groups, but unfortunately this was not possible. The data did not meet the assumptions for parametric analysis and regular parametric testing could therefore not be conducted. The chi-square test was quickly considered, as it does not rely on the assumptions of parametric tests. However, it appeared that the data did not meet one of the two important assumptions of this test either. The expected counts should be greater than five because if they are not, the chi square statistics are not going to be accurate (Field, 2013).

Several non-parametric tests were also considered. Non-parametric tests are useful since they can be used on data that are not normally distributed, but there are several issues one needs to be aware of when it comes to non-parametric statistical procedures: One issue is that it is difficult to know exactly how much power a test has since it is difficult to assess what the error rate should be, and therefore it is necessary to be aware of Type I errors. In normally distributed data the error rate is 5 %, but when it comes to data that is not normally distributed, it is difficult to know what it is, precisely due to this uneven distribution (Field, 2013). If the few assumptions for non-parametric statistics have been met, however, non-parametric test can be quite powerful. There is nevertheless much uncertainty with such testing, and only descriptive statistical

analysis was therefore conducted on the data. The central tendency in the form of the mean and the variation in form of the standard deviation were found, and on the basis of these descriptive statistical models the data were further qualitatively analyzed.

The data, although transformed into numerical form, where originally in written form, which also gives way for a qualitative analysis. If the data were to be analyzed purely quantitatively much information would be lost, and therefore a qualitative approach to the data will give much insight in the use of the three grammatical features investigated. The basic data in this study is after all very small. There are few subjects, that in addition are variable, and even the groups are not clear cut. Comprehensive statistical testing could therefore have covered up more than they would reveal.

According to Seliger and Shohamy (1989), qualitative analysis requires an organization of the data according to an organizing scheme derived from, for instance, specific hypotheses. The goal of qualitative analysis is to find commonalities, regularities, or patterns in the data, and it therefore has to be summarized and collapsed in systematic ways.

The results are presented in detail in the next chapter, while a thorough discussion on the results will be given in chapter 5.

4   Results

The results are presented testwise. The tables present both the total results and the results for each language group: The L1 group (L1), the L2 group (L2) and the control group (CG).

4.1   Wug test: Consonant gradation

The tables below contain the results for each sub group of non-words. The expected finding was that the participants would perform better on the even syllable non-words. In addition, the L1-speakers were expected to perform better than the L2-speakers.

Table 4.1 | Total scores for even syllable non-words

	N	Minimum	Maximum	Mean	Std. deviation
L1	8	5.00	13.00	8.1875	2.31359
L2	15	.00	9.00	3.3000	3.46822
CG	11	7.50	16.50	12.7727	3.27386
Even	34	.00	16.50	7.5147	5.18518

a. Highest possible score: 18

Table 4.2 | Total scores for odd syllable non-words

	N	Minimum	Maximum	Mean	Std. deviation
L1	8	.00	1.00	.4375	.32043
L2	15	.00	1.00	.5333	.22887
CG	11	.00	5.00	2.6364	1.62928
Total	34	.00	5.00	1.1912	1.37077

a. Highest possible score: 5

Table 4.3 | Total scores for contracted syllable non-words

	N	Minimum	Maximum	Mean	Std. deviation
L1	8	.50	3.50	1.7500	1.22474
L2	15	.00	2.50	1.2333	1.11590
CG	11	.50	4.00	2.0455	1.52405
Total	34	.00	4.00	1.6176	1.29719

a. Highest possible score: 7

The results in the tables above show that even syllable non-words have the highest total mean score at 7,51 (ST.dev. 5,18). The mean score for both odd syllable (1,19) and contracted (1,61) non-words are rather low. These overall results indicate show that the best performance is on even syllable non-words. The control group has, not unexpected, the highest overall mean score across all lexical classes. Table 4.1 shows that the L1 group scores considerably lower than the control group and the L2 group scores considerably lower than the L1 group again. The high standard deviations for all groups indicate that there are large variability between the participants within all of them.

The results in table 4.2 show that the L1 and L1 group scored low. For both of them the maximum score was one. The overall mean for the CG is only half of the highest possible score, but also here there is high variability within the group (ST.dev. 1,62).

The results in table 4.3 are slightly better than in the previous table. The overall mean for both the L1 and L2 group is still low, but for the L1 group at least the maximum score is half of the highest possible score. The control group has the highest mean score, and the standard deviation is relatively high across all groups.

The results for the different types of non-words are presented in more detail below.

4.1.1 Even syllable non-words

The results for the even syllable non-words are presented groupwise below.

Table 4.4 | Total scores for quantitative alternations

	N	Minimum	Maximum	Mean	Std. deviation
L1	8	4.00	6.50	5.2500	.92582
L2	15	.00	8.00	3.1000	3.19151
CG	11	4.50	7.00	5.7727	.87646
Total	34	.00	8.00	4.4706	2.51041

a. Highest possible score: 8

Table 4.5 | Total scores for qualitative alternations

	N	Minimum	Maximum	Mean	Std. deviation
L1	8	.00	7.50	2.3750	2.24801
L2	15	.00	1.00	.1333	.35187
CG	11	.00	8.00	5.7727	2.51360
Total	34	.00	8.00	2.4853	3.02636

a. Highest possible score: 8

Table 4.6 | Total scores for both alternations

	N	Minimum	Maximum	Mean	Std. deviation
L1	8	.00	2.00	.5625	.72887
L2	15	.00	1.00	.0667	.25820
CG	11	.00	2.00	1.2273	.75378
Total	34	.00	2.00	.5588	.75643

a. Highest possible score: 2

The results in the tables above show that the quantitative alternations have the highest total mean score at 4,47 (ST.dev. 2,51) compared to the total mean score for qualitative alterations at 2,48 (ST.dev. 3,02)and 0,55 (ST.dev. 0,75) for both alterations.

Table 4.4 shows that that all groups score high. A somewhat curious observation might be that even with the lowest mean score; the L2 group is has the highest maximum score. At the same time, however, it has the lowest minimum score, indicating that there is great variability within the L2-group (ST.dev. 3,19). That there is greater variability within the L2 group than in the two other groups is not an unexpected finding. The standard deviations for the L1 and control group are low, indicating there is smaller variability within the groups: Everybody in both the L1 and control group got at least half of the quantitative non-words right even if none got the full total score.

The most significant finding in table 4.5 are the low results for the L2 group. The L1 group score lower for qualitative non-words than qualitative non-words, and in addition there is greater variability within the group (ST.dev. 2,24). The control group's mean results are similar to those in table 4.4. The standard

deviation is, however, notably bigger in table 4.5., indicating greater variability within this group, as well. The L1 and L2 group score low for the non-words with both types of alternations.

4.1.2 Contracted non-words

The overall results for contracted non-words are low (see table 4.3 above). The hypothesis regarding contracted non-words was that the non-words with –oj/-åj suffixes would not necessarily be changed. Table 4. 9 shows the results for the contracted non-words with these suffixes.

Table 4.7 | Contracted non-words with –oj/-åj endings

	N	Minimum	Maximum	Mean	Std. deviation
L1	8	.50	2.50	1.3125	.79899
L2	15	.00	2.00	.8000	.79732
CG	11	.50	3.00	1.6364	1.00227
Total	34	.00	3.00	1.1912	.92125

a. Highest possible score: 5

Comparing these numbers with those in table 4.3, the results suggest that the expected finding is not true as the scores are very similar. The maximum score in table 4.9 for both the control group and the L1 group is one less than in table 4.3. The overall means in both groups are also similar, suggesting that the removal of the two non-words without the aforementioned endings did not alter the results very significantly. However, what is not clear from these tables is whether the scores are for expected word form or for the expected consonant gradation only.

A qualitative analysis of these results will be given in the next chapter.

4.2   Cloze test: Spatial expressions

The total results for the grammatical synonymy between case expressions and adpositional expression are given in the table below. Table 4.9 presents the overall choices of case and postposition (PP).

Table 4.8 | Overall choice of both spatial constructions

	N	Minimum		Maximum		Mean (ST.dev.)	
		Case	PP	Case	PP	Case	PP
L1	8	15	2	21	11	18.12 (1.95)	7.50 (3.16)
L2	15	3	3	23	16	14.40 (6.05)	7.06 (2.93)
CG	11	8	0	19	10	15.54 (3.20)	3.27 (3.13)
Total	34	3	0	23	16	15.64 (4.65)	5.94 (3.50)

The results show that case constructions are clearly preferred across all language groups: The total mean score for case is 15,64 (ST.dev. 4,65) compared to 5,94 (ST.dev. 3,60) for postpositions. There are some differences across language groups: The L1 group has the highest overall mean score for case, while the control group has the lowest mean score for PP constructions. In addition, and more notably, the standard deviation is bigger for the L2 group, indicating greater variability between the participants.

3.2.1 Group 1: Spatial relations with "optional" constructions

Table 12 present the results for the first group of spatial relations where neither construction is expected to significantly prevail, but where both case and postpositional expressions would be chosen to the same degree.

Table 4.9| Choice when "optional" spatial relations

	N	Minimum		Maximum		Mean		Std. Deviation	
		Case	PP	Case	PP	Case	PP	Case	PP
L1	8	3	1	6	7	5.00	3.62	1.19	2.19
L2	15	0	2	8	8	3.66	3.66	2.71	1.71
CG	11	0	0	6	5	3.90	1.45	2.02	1.80
Total	34	0	0	8	8	4.05	2.94	2.22	2.08

a. Highest possible score = 8

The results in the table above show that case has the highest total mean score at 4.05 (ST.dev. 2,22) against 2.94 (ST.dev 2,08) for PP. Both the L1 and control group favor case constructions, and only the L2 group behaves as expected with

the exact same mean score for both groups at 3.66. The standard deviation is also higher for case (2,71) than for PP (1,71) in the L2 group, suggesting that there is less variability within the group and thus more consistency in the use of PP constructions than for case. The difference between the experimental groups might indicate Norwegian L1 influence.

3.2.2 Group 2: Spatial relations with case constructions

Table 4.10 presents the mean results for the second group of spatial relations, choices where case would be preferred according to theory.

Table 4.10| Choice when case constructions are expected

	N	Minimum		Maximum		Mean (st.dev.)	
		Case	PP	Case	PP	Case	PP
L1	8	7	0	8	2	7.75 (0.46)	.50 (.75)
L2	15	3	0	8	2	6.66 (1.71)	.13 (.51)
CG	11	6	0	8	2	7.54 (0.82)	.45 (.82)
Total	34	3	0	8	2	7.20 (1.32)	.32 (.68)

a. Highest possible score = 8

The results in the tables above show that case constructions are clearly preferred across all language groups. The total mean score for case is 7.20 compared to 0.32 for PP. The L2 group is the only one to differ slightly from the others in that there is greater variability amongst the subjects (ST.dev. 1,71), but even for the L2 group the total mean score for cases is quite high (6,66) if a little lower than for the other two groups. A curious observation is that the total score for postposition is also lower than for the L1 and control group, initially suggesting the L2 group dislikes both more. The reason for this, however, might simply be that there are more missing values in the L2 group than in the other two groups.

3.2.3 Group 3: Spatial relations with PP constructions

Tables 4.11 present the mean results for the third group of spatial relations, choices when postposition constructions would be preferred according to theory.

Table 4.11| Choices when PP constructions are expected

	N	Minimum		Maximum		Mean (st.dev.)	
		Case	PP	Case	PP	Case	PP
L1	8	3	1	7	6	5.37 (1.30)	3.37 (1.50)
L2	15	0	1	7	6	4.06 (2.18)	3.26 (1.03)
CG	11	2	0	5	3	4.09 (1.22)	1.36 (1.22)
Total	34	0	0	7	6	4.38 (1.77)	2.67 (1.45)

a. Highest possible score = 8

The results in the tables above show that even in this group case is generally more preferred (total mean 4.38, ST.dev. 1,77). Looking across language groups, the results show that the L1 and L2 groups score similarly when it comes to PP with a mean score at around 3, while the control group's mean score is at 1.36. The variability in all groups is similar, too. When it comes to cases, the L2 and control group score similarly, while the L1 has the highest mean score at 5.37 (ST.dev. 1,30). In general, the mean scores suggest that the participants prefer case constructions even in choices when PP are expected to be preferred. The behavior of the L2 group differs again from the other two group, if only slightly so in this instance. Greater variance is found within the L2 group also here.

Two types of variables were used to influence the choice postposition over case: Variable a. was on closeness on distance between the trajector (TR) and the land mark (LM), more specifically it consisted of close distance between the TR and LM; and variable b was on the type of relation between TR and LM, more specifically it consisted of an "unusual" relation between TR and LM. Table 4.12 presents the choices of spatial expressions in more detail as the results are checked for the two variables.

Table 4.12 | Choice for each contextual condition

		N	Minimum	Maximum	Mean	Std. Deviation
a.	Case	34	.00	5.00	3.2353	1.15624
	PP	34	.00	2.00	.3235	.63821
b.	Case	34	.00	4.00	1.1471	.95766
	PP	34	.00	4.00	2.3529	1.12499

a. Highest possible score = 8

The results in the table above shows that the mean score for case constructions for variable a is considerably higher than the mean for PP constructions, suggesting that a closeness of distance between TR and LM is not decisive for choosing a PP construction. The results for the second variable, however, indicate that variable b might be of significance, as the mean scores do not differ as significantly; the mean score for PP (2,35, ST.dev. 1,12) is in fact higher than for case (1,14, ST.dev 0,95). Variable a might thus influence the choice of PP over case; when it comes to spatial relations where there is an "unusual" or "odd" relation between TR and LM, postpositions are preferred over case.

4.3   Cloze test: Dual

Tables 4.13 and 4.14 present the mean results for the Cloze test on the use of personal pronouns marked for dual. The first table present the results for the experimental items where personal pronouns were expected to be marked for dual, and the second table presents the distractor items where personal pronouns were expected to be marked for plural.

Table 4.13| Results for personal pronouns marked for dual

	N	Minimum	Maximum	Mean	Std. Deviation
L1	8	5.00	6.00	5.7500	.46291
L2	15	.00	6.00	2.4000	2.41424
CG	11	5.00	6.00	5.9091	.30151
Total	34	.00	6.00	4.3235	2.35772

a. Highest possible score = 6

Table 4.14| Results for personal pronouns marked for plural

	N	Minimum	Maximum	Mean	Std. Deviation
L1	8	4.00	4.00	4.0000	.00000
L2	15	.00	4.00	1.9333	1.38701
CG	11	3.00	4.00	3.9091	.30151
Total	34	.00	4.00	3.0588	1.36939

a. Highest possible score = 4

The results in the tables above show that the L1 group performed as expected when it comes to plural. A curious finding is that the control group does not, even if the general results are high. Similarly, both groups score high in table 4.13, but even here not all of them have a full score. Whether to attribute this a feature of the grammatical competence or just a simple slip can be discussed. The standard deviations are after all very low, indicating little variability within the groups.

The overall mean scores for the L2 group is low for both dual marking (2,40, ST.dev. 2,41) and for plural marking (1,38, ST.dev 1,92). There is again greater variability within this group, as there are instances of no scores and full scores for both markings. The most curious finding when it comes to the L2 group is that it has a low mean score for both dual and plural marking; the L2 group has thus not performed as expected in neither one. The hypothesis was that the L2 group would overgeneralize plural marking, but that does not seem to be the case here.

4.4   Grammaticality Judgment Task: Grammar of spatial expressions

Table 4.15 presents the results for the choices of spatial expressions in the GJT.

Table 4.15| Results for choice of spatial expression

	N	Minimum	Maximum	Mean	Std. Deviation
1 (good)	31	.00	24.00	15.1613	6.13241
2 (ok)	31	.00	22.00	6.0968	5.46720
3 (bad)	31	.00	9.00	2.2258	2.15576

Table 4.15 above shows that the majority of the items in the GJT on spatial expressions were judged to be good or acceptable at the least. Very few judged the items to be bad. The standard variation for good and acceptable judgments are high, indicating there is great variability between the results. The mean for bad judgments is nevertheless only 2,22, quite a lot less than for the acceptable and good judgments.

The numbers in table 4.15 are very similar to the numbers for each language groups, the results did not differ significantly.

4.5   Grammaticality Judgment Task: Dual

There were two types of test items conducted in order to test the metalinguistic awareness of Lule Sami speakers when it came to personal pronoun marking. The first type were items with pictures of a given number of people and sentences referring to a given number of people. The second type were items with pictures of a given number of people and with sentences without agreement between the subject and the verb.

Tables 4.16, 4.17 and 4.18 present the results for the first type of items. Four (a) were distractor items where the numbers of picture and sentence matched, and four (b) where items where there were two people on the picture, but where the text referred to three or more people.

Table 4.16| Results for type 1 items - scores for L1 group

Group 1	Score	N	Minimum	Maximum	Mean	Std. Deviation
a. Match	1 (good)	8	2.00	4.00	2.6250	.74402
	2 (ok)	8	.00	2.00	1.1250	.83452
	3 (bad)	8	.00	1.00	.3750	.51755
b. No match	1 (good)	8	.00	2.00	.6250	.74402
	2 (ok)	8	.00	4.00	.6250	1.40789
	3 (bad)	8	.00	4.00	2.7500	1.38873

Table 4.17| Results for type 1 items - scores for L2-group

Group 1	Score	N	Minimum	Maximum	Mean	Std. Deviation
a. Match	1 (good)	14	1.00	4.00	2.8571	.86444
	2 (ok)	14	.00	2.00	.7857	.69929
	3 (bad)	14	.00	3.00	.3571	.84190
b. No match	1 (good)	14	1.00	4.00	2.7857	1.12171
	2 (ok)	14	.00	3.00	.7143	.99449
	3 (bad)	14	.00	3.00	.6429	1.00821

Table 4.18| Results for type 1 items - scores for CG-group

Group 1	Score	N	Minimum	Maximum	Mean	Std. Deviation
a. Match	1 (good)	9	2.00	4.00	3.0000	.86603
	2 (ok)	9	.00	2.00	.7778	.83333
	3 (bad)	9	.00	1.00	.4444	.52705
b. No match	1 (good)	9	.00	1.00	.2222	.44096
	2 (ok)	9	.00	1.00	.1111	.33333
	3 (bad)	9	3.00	4.00	3.6667	.50000

The results in table 4.16 show that the L1 group judges the distractor items very much as expected, either as acceptable (mean 1.12, st.dev. 0.83) or good (mean 2.67, ST.dev 0.74). Most of them rate the items in *b.* as bad (mean 2,75) even if acceptable and even good judgments were given also. The standard deviation is however high for the acceptable and bad judgments in *b.*, indicating there are greater variability between the scores.

The results in table 4.17 show that the L2 group behaves differently from the two others also in this test. The majority within judge the items in both *a.* (mean 2,85) and *b.* (mean 2,78) as good. The variability, however, in *b.* is bigger than in *a.* suggesting that there are bigger variability between these scores.

The results in table 4.18 show that the control group behaves as expected and they have almost all judged the items in *b.* as bad (mean 3.66). Conversely they

judged the distractor items as good (mean 3.00). The standard deviations are all low. It might seem curious that even in the control group items where judged as acceptable only and even bad at occasions, however, it is worth remembering that in Grammaticality Judgment Tasks other factors can influence the judgment apart from the intended experimental feature.

Tables 4.19, 4.20 and 4.21 present the results for the second type of items, where the manipulation is in lack of agreement between the subject and the verb. Variable *a.* consists of items where the subject is marked for dual and the verb inflected for plural and variable *b.* consists of items where the subject is marked for plural and the verb inflected for dual.

Table 4.19| Results for type 2 items - scores for L1-group

Variable	Score	N	Minimum	Maximum	Mean	Std. Deviation
a. dl-pl	1 (good)	8	.00	3.00	1.3750	1.30247
	2 (ok)	8	.00	2.00	.5000	.75593
	3 (bad)	8	.00	3.00	1.1250	1.24642
b. pl-dl	1 (good)	8	.00	4.00	1.5000	1.51186
	2 (ok)	8	.00	1.00	.7500	.46291
	3 (bad)	8	.00	5.00	2.7500	1.83225

Table 4.20| Results for type 2 items - scores for L2-group

Group 2	Score	N	Minimum	Maximum	Mean	Std. Deviation
a. dl-pl	1 (good)	14	1.00	3.00	2.4286	.64621
	2 (ok)	14	.00	1.00	.5000	.51887
	3 (bad)	14	.00	1.00	.0714	.26726
b. pl-dl	1 (good)	14	1.00	5.00	3.0000	1.30089
	2 (ok)	14	.00	3.00	1.2143	1.36880
	3 (bad)	14	.00	2.00	.7143	.91387

Table 3.21| Results for type 2 items - scores for CG-group

Group 2	Score	N	Minimum	Maximum	Mean	Std. Deviation
a. dl-pl	1 (good)	9	.00	3.00	.7778	1.09291
	2 (ok)	9	.00	2.00	.6667	.86603
	3 (bad)	9	.00	3.00	1.6667	1.00000
b. pl-dl	1 (good)	9	.00	3.00	.6667	1.11803
	2 (ok)	9	.00	3.00	1.1111	1.16667
	3 (bad)	9	1.00	5.00	3.5556	1.50923

The control group performs mostly as expected. Table 4.21 shows that most of the participants judge both the items in a. and b. bad or at least only acceptable. Note the standard deviations that indicate that there is quite some variability within this group.

The L1 group does not perform completely as expected. The results for *a.* show an equal judgment of the items as good (mean 1,37) and bad (1,12). Some of the items in *b.* are also judged as good (mean 1,50) even if the majority judged them bad (2,75). The standard deviation, however, is high for this score. Generally, it seems that the L1 speakers are not as consequent in personal pronoun marking when it comes to metalinguistic awareness tasks as they are in production tasks.

The results is the tables above show that the L2 group again performs differently from the two other groups as the L2 group judge most of the items as good (mean a. 2.42, mean b. 3.00). Very few of them find the items to be bad. The standard variations, however, suggest larger variability for *b.* than for *a.*, suggesting that the L2 group more uniformly judge the items in *a.* as good, while for *b.* they do not.

5   Discussion of the results

The present study was an investigation on the grammatical competence of Lule Sami speakers, both L1 and L2 speakers across various ages. The focus was on three grammatical features and the main aim of the study was to investigate the difference in performance between the participants. A focal point was to examine whether such differences could be traced to Norwegian L1 influence.

The results for each one of the grammatical features will be thoroughly discussed in the sections below.

5.1   Consonant gradation

Non-word conforming to Lule Sami phonology and orthography were created in order to investigate Lule Sami speakers' linguistic competence in regards to consonant gradation. Three types of non-words were created to resemble Lule Sami nouns: Even syllable non-word, odd syllable non-words and contracted non-words. The hypothesis was that the participants would perform better on the even syllable non-words, and these expectations were confirmed. All three language groups performed better on the even syllable non-words than on the odd syllable and contracted non-words

There were three sub groups of even syllable non-words consisting of non-words with quantitative alternations, qualitative alternations and alternations including both types. The participants were expected to perform better on the quantitative alternations, and this expectation was also confirmed: All three language groups performed better on the quantitative alternations than on the other two alternations. There was greater variability within the L2 group than in the others. Although the L2 group generally scored lower than the two L1 groups, there was at least one L2 participant who performed as expected, suggesting that the most proficient L2 speakers perform at L1 group level.

Of the quantitative non-words, *tjállje, sássko* and *doajddo* were the non-words the participants performed best on. See table 5.1 below for an overview of the total scores on each of the non-words with qualitative alternations.

Table 5.1| Total results for each item with qualitative alternations

Item	1 Viebbma Viebma	5 Tjállje Tjálje	10 Sássko Sásko	18 Ienna Iena	20 Diellá Dielá	24 Doajddo Doajdo	27 Låvkki Låvki	36 Buolkka Buolka
.0	10	7	8	18	19	7	13	10
.5	10	5	5	8	6	5	10	7
1.0	14	22	21	8	9	22	11	17
Total	34	34	34	34	34	34	34	34

a. 0 = not expected answer; .5 = expected grade alternation; 1 = expected word form

An interesting observation is the difference in results from items 5, 10 and 24 on the one hand to items 1, 27, 36 on the other. The non-words in the first three are all instances of pure quantitative alternations. The words in the latter three, however, are all items with consonant centers that are orthographically marked as quantitative alternations, but that actually are pronounced as qualitative alternations. See item 36, for instance, where the consonant center is orthographically marked as bbm-bm, but is actually pronounced as [bbm] - [ppm]. See chapter 2.2.1 on consonant gradation for a review of the issues on differences between spelling and pronunciation.

These results suggest that the very least marked form in consonant gradation is the pure quantitative alternations, i.e. where only the consonant duration differs between the forms. Immediately when a complicating feature, i.e. a qualitative alternation, is added, the performance gets worse. This is why great variability is found within the L2 group, especially. This study otherwise shows that the most proficient L2 speakers often perform on the level of the L1 group.

The results for qualitative alternations were as expected: Both experimental groups performed worse for these alternations than for the quantitative ones. The L2 group, especially, scored low and the maximum score was 1. The overall mean for the L1-group was only about half of what it was for the quantitative alternations. The variability within the group was, however, higher and the maximum score was almost the highest possible score. For the control group the overall mean was the same as for the quantitative alternations, but there was greater variability between the participants also in this group. See table 5.2 below for an overview of the scores for each item.

Table 5.2| Total results for each item with qualitative alternations

Item	35 Sjoagge Sjoakke	72 Liegge Liekke	42 Oabbo Oappo	44 Biedde Biette	Xx Nuoddo Nuotto	54 Luokte Luovte	49 Tjuoktje Tjuovtje	51 Iekso Ievso
.0	23	25	23	26	27	19	21	20
.5	0	1	1	2	0	0	1	2
1.0	11	8	10	6	7	15	12	12
Total	34	34	34	34	34	34	34	34

a. 0 = not expected answer; .5 = expected grade alternation; 1 = expected word form

It is clear that most of the participants did not produce the expected word forms for the qualitative alternation, and neither did many produce the expected consonant gradations in isolation. The participants in the control group and the most proficient in the L1 group are most likely the ones who produced the expected word forms.

An interesting observation when it comes to the qualitative alternations is that the highest scores are found for the three last words, and these are all words where only the very first consonant in the consonant center alters, and not the whole consonant center. These findings confirm the findings from the quantitative alternations in that the simpler alternation patter, the better performance.

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The results for the odd syllable non-words were much as expected: All groups seemed to struggle with these items, and there were low results especially for the L1- and the L2-group where the maximum score in each group was one. The control group performed better even if the general mean score was not more than 2,63 (ST.dev. 1,62). There were, however, some that produced all the five expected word forms, even if the variability within the group was large. See table 5.3 for the results on each single odd syllable non-word.

Table 5.3| Total scores for each odd syllable non-word

Item	14 Viela Viellaga	64 Viegar Viehkara	7 Gema Gebmaga	55 Guobij Guohpiha	58 Látjas Látjasa
.0	22	27	28	27	8
.5	8	1	1	2	22
1.0	4	5	5	5	4
Total	34	34	34	34	34

a. 0 = not expected answer; .5 = expected grade alternation; 1 = expected word form

The overall results for the contracted non-words were also as expected, namely relatively low. The control group has the highest overall mean score at 2,04, but the experimental groups follow close behind. Compared to the results for the odd syllable non-words, the results for contracted non-words are actually fairly better. The control group scores similarly as for the odd syllable non-words, but both the L1 and the L2 group performed better with the contracted non-words than with the odd syllable ones. A reason for this might be because of the total scores for the expected grade alternation in isolation, and not because the word forms themselves were produced as expected. See table 5.4 for the results on each of the contracted non-words.

Table 5.4| Total results for each contracted non-word

Item	60 Sájkes Sájkká	26 Válkes Válkká	66 Guoloj Guollu	68 Åjvåj Åjvvå	70 Láttoj Láddu	38 Dæloj Dællu	48 Viehtsoj Viehttsu
.0	19	24	17	18	28	20	29
.5	12	9	12	14	4	14	9
1.0	3	1	5	2	2	0	1
Total	34	34	34	34	34	34	34

a. 0 = not expected answer; .5 = expected grade alternation; 1 = expected word form

Compared to the results for odd syllable non-words in table 5.3, it is clear that fewer participants produced the expected word form themselves, but many nevertheless produced the expected grade alternations. The reason for this is likely the word forms themselves, as the contracted non-words resemble even syllable non-words in that they have the same number of syllables, and in addition are the genitive word forms of contracted non-words similar to even syllable nominative forms. As explained in chapter 3 on the creation of the nonsense material, it is extremely difficult to create non-words that must be of a specific lexical class. Thus it is not unsurprising that due to the immediate similarity between the forms many would apply a weakening paradigm for the contracted non-words even if they were conformed to have a Q3 strengthening morphology.

An interesting finding in one participant in the L1 group may possibly explain why so many produced the expected grade alternation only, but not the whole expected word form. This participant corrected the test items, treating the contracted non-words as even syllable non-words: The plural word form (in a strong grade) was corrected to a singular and a plural form similar to that of an

even syllable non-word was produced. See (5.4) for examples of this occurrence (the item is translated to English for convenience).

(5.4)   Original item   Corrected item

These are two *válkká*   These are ~~two~~ 1 válkká

The other one dissapeard.   ~~The other one dissapeard~~.

Only one has remained.   ~~Only one has remained.~~

There is one _____ left.   There is <u>one</u> _____ <u>left.</u> 2 válká

The expected word form was *válkes*, a contracted non-word that conforming to Lule Sami contracted nouns would take an –es suffix. This participant, however, clearly treated it as an even-syllable non-word with a weakening morphology.

The most interesting finding when it comes to the contracted word forms, however, is in the performance of the control group: The participants seemed to refrain from alternating consonantal centers for the contracted non-words. See table 4.2 for the answers of the CG on the contracted non-words.

Table 5.5| Total scores for the CG on the contracted non-words

Item	60 Sájkes Sájkká	26 Válkes Válkká	66 Guoloj Guollu	68 Åjvåj Åjvvå	70 Láttoj Láddu	38 Dæloj Dællu	48 Viehtsoj Viehttsu
.0	7	9	3	7	7	8	4
.5	2	1	3	2	2	3	6
1.0	2	1	5	2	2	0	1
Total	11	11	11	11	11	11	11

a. 0 = not expected answer; .5 = expected grade alternation; 1 = expected word form

This seems to be a consistent tendency in the control group. When compared to the scores of the L1-group, these findings are not confirmed there. See table 5.5 below for a comparison.

Table 5.6| Total scores for the L1 on the contracted non-words

Item	60 Sájkes Sájkká	26 Válkes Válkká	66 Guoloj Guollu	68 Åjvåj Åjvvå	70 Láttoj Láddu	38 Dæloj Dællu	48 Viehtsoj Viehttsu
.0	6	4	4	2	6	4	3
.5	1	4	4	6	2	4	5
1.0	1	0	0	0	0	0	0
Total	8	8	8	8	8	8	8

a. 0 = not expected answer; .5 = expected grade alternation; 1 = expected word form

These numbers suggest that while the L1 group tended to at least attempted to alter the forms, many in the control group did not. Especially item 68 might prove an evidence of this as it is suspect that 6 out of 8 L1 speakers did alter the consonant center, but only 4 of 11 of the control group produced the expected consonant gradation or word form.

This last finding is particularly interesting as it confirms the hypothesis that the contracted non-words with –oj and –åj suffixes would not necessarily be altered at all. According to these speakers, a language change has or at least is occurring where the genitive form of the contracted nouns with –oj/-åj endings is used even when the nominative form would be expected. One has, nevertheless, to be careful to conclude anything as the numbers in question do not differ significantly. Also, a factor that has to be considered is the difference between long and overlong consonant centers that is not marked in orthography. The participants could have alternated the contracted non-words from QIII to QII without it being apparent in writing. Still, these results rise the question of whether this observed paradigm leveling may in fact be true.

In sum there is better performance on the even syllable non-words, suggesting these are the least marked alternations. This was as expected since even syllable words involving weakening morphology are the most frequent. In contrast, odd syllable and contracted nouns are less frequent and in some ways more complex.

For example, Morén-Duolljá (2013, in preparation) shows that odd syllable words involving weakening consonant gradation have at least 30 basic morpho-phonological patterns, while even syllable words involving weakening consonant gradation only have six. Although there are fewer contracted patterns (i.e. three) than even syllable patterns, contracted words involve Q3 strenthening morphology (which is less frequent than weakening morphology). Especially for a second language learner the Lule Sami consonant gradation system is going to be tough to learn.

Of the even syllable nouns there is better performance on the non-words with quantitative alternations than for those with qualitative alternations. Of these the results were better for the quantitative alternations with pure quantitative alternations than for alternations that orthographically are marked as quantitative but are in fact pronounced as qualitative alternations. The gradation pattern for quantitative alternations is less complex than for qualitative ones: In pure quantitative alternations there is only a phonologically relevant duration differences between the forms, whereas in qualitative ones the consonants themselves change. The consonant gradation for qualitative alternations is thus more complex. The L2 group especially struggled with the qualitative alternations, in addition to the odd syllable and contracted non-words

These findings may also be attributed to Norwegian influence on Lule Sami. While there is no grade alternation in Norwegian, it is a quantitative language with differences in vowel and consonant duration (Lidestam, 2009; Rice, 2006). Lule Sami speakers are first language speakers of Norwegian, as well, and they are therefore already used to identifying duration differences in Norwegian, making this an overlapping feature that is strengthened across both languages.

Finally, there are a few issues important to mention in this discussion. First, conducting a written test of such a complex morphophonological phenomenon as Lule Sami consonant gradation might not be optimal since not all features of gradation are marked in orthography. Second, it is near impossible to create a nonsense material that necessarily must fall into a specific lexical class. These

findings are nevertheless of importance as they do give an overview of the grammar competence in Lule Sami speakers in regards to consonant gradation.

5.2   Grammar of spatial expressions

The second grammatical feature investigated was the grammar of locative cases and locative adpositions. The hypothesis was that the two spatial expressions, although apparently synonymous, would be chosen under different contextual conditions.

The overall results show that regardless of context case constructions were chosen more often, and this even under contextual conditions where adpositional constructions were expected to be chosen; postpositional constructions were only preferred under very specific contexts. There are differences between the performance of the L1 and L2 groups, where the latter chose postposition constructions more often than the former, thus suggesting that cross-linguistic influence might have occurred.

The first group of spatial relations were contexts were neither spatial expression was expected to significantly prevail. These spatial relations consisted mostly of static locations, and the locative case of inessiv and the postpositions *sinna* 'in' and *nanna* 'on' were expected to be chosen very much to the same degree as they seem to beespecially synonymous. The control group and the L1 group performed similarly: Both groups more often chose case over PP. The L1 group, however, did not reject postpositional constructions to the same degree as the control group that has a low overall mean score for postpositions at 1,45 (ST.dev. 1,80). The L1 group has the same mean score as the L2 group at 3,6, but there is more variation within the L1 group and their overall mean score for case is up at 5,00 (1,19), while it is 3,99 (ST.dev. 2,71) for the L2 group. See table (5.5) below for an overview of the total results for each item.

Table 5.5| Total scores for each item in the "optional" group

Item	23	39	47	53	71	45	57	17
None	2	7	6	4	4	4	4	3
Case	15	14	22	25	14	14	6	28
PP	17	13	6	5	16	16	24	3
Total	34	34	34	34	34	34	34	34

Table 5.5 above reveals that case constructions are very clearly preferred in items 47, 53 and 17, while 23, 39, 71 and 45 the scores are very much the same for either. In item 57, however, postpositions are quite clearly preferred. A somewhat curious find, maybe, but it might very well be due to the item itself, which is a shoe in a box. It might very well be that the participants did not take it as an item of a common or usual relation between trajector and landmark, but rather as an instance of "unusual" relation, thus preferring a postpositional construction to code this spatial relation.

The second group of spatial relations were situations where case constructions were expected to be the preferred spatial expression, and the results show that all groups clearly preferred case constructions. There were no big differences between the groups, and the L2 group did not stand out. The results for the Cloze and the GJT were the same for these contextual conditions. The contextual conditions expected to influence the choice of case construction could therefore be said to have been confirmed. The general preference for case, however, is so high that it need not be the contextual conditions themselves that attributed to these results more than a overall general preference for case all together.

The third group of spatial relations were relations were postpositional constructions were expected to be the preferred spatial expressions. Also here case was generally more chosen that the expected choice of postpositions. Only under the context of an "uncommon" relation between the trajector and

landmark (b.) did the picture change, and thus conforming only this variable as having an influence of the choice of either spatial expression. Variable *a.* did not influence the choice of PP at all. See table 5.6 below for the total scores for all the items in this group.

Table 5.8| Total scores for each item in the "PP" group

Item	53 a	63 a	34 a	19 a	65 b	22 b	25 b	43 b
None	2	2	5	9	3	5	5	5
Case	30	28	28	20	13	9	8	9
PP	2	4	1	5	18	20	21	20
Total	34	34	34	34	34	34	34	34

The results from the Cloze test were confirmed in the GJT; both in production tasks and in metalinguistic tasks, the results were similar. The most striking finding in the GJT was that most of the items were judged at least acceptable, if not completely good. This does not, however, come as a surprise as strictly speaking all the items were grammatically acceptable. In fact, in the judgments of sentences as bad or only acceptable, several participants attributed this to other factors than the spatial relations themselves. The most common correction was on word order.

In sum, the results from the tests on the grammar of spatial expressions indicate that case constructions generally seem to be the default spatial expression in Lule Sami. According to Klavan (2012), the general claim in literature is that case are more abstract and that they express a more frequent spatial relation than adpositions. The contextual conditions investigated in this thesis were simple, semantic ones, and it would be interesting to see what results other, maybe more complex semantic ones, but also morphosyntactic contextual conditions would bring.

The L2 group is the only one performing more or less as expected: In the first group of "optional" spatial relations, they had the same mean score for both case and postpositions even if the variability between participants is larger for case. Similarly for the third group of postpositional spatial relations, the L2 group is the one that prefers PP constructions the most, even if the total mean is low. That the L2 group is the only one performing as expected may be attributed to cross-linguistic influence from their Norwegian L1. In Norwegian, spatial relations are coded by adpositions only, which might lead to an overgeneralizing of the use of adpositional constructions in their production of Lule Sami, as well. The Lule Sami adpositions in questions are postpositions that follow their compliment to form a postpositional phrase as opposed to Norwegian prepositions that precede their compliments. This is, however, only a difference in the surface structure of the languages. Overgeneralization, as discussed in chapter 2.1.9, is a common feature of L2 grammar and a classic example of cross-linguistic influence: Studies have shown that bilingual children tend to overgeneralize a feature that is found in both languages (see for instance Döpke, 2000 as cited in Gass & Selinker 2008).

Another interesting observation when it comes to L2 behavior is that quite a few of them do not produce the expected case forms in given spatial relations. The L2 speakers often prefer case, but they do not always use the expected case forms. This could be a strategy of simplification and according to Montrul (2010), this is typical of the behavior of heritage speakers: Heritage speakers will tend to produce errors when it comes to, for instance, case markings. This can also be a feature of transfer from the majority language, which does not have case markings.

5.3 Dual

The third grammatical feature investigated was the use of personal pronouns marked for dual. The overall results show that the control group and the L1 group use the expected personal pronouns marking in production tasks, at the least. The performance within the L2 group, however, is more variable: The most

proficient use the expected personal pronouns to the same degree as L1 speakers, but for the majority the general performance is lower.

The L2 group generally scores low in the production tasks, both for personal pronouns marked for dual and plural. The hypothesis on overgeneralization of plural markings was thus not confirmed; the expected finding was that the L2 speakers would adopt the learner strategy of overgeneralization of grammatical features that are found in both languages to solve the tasks on personal pronouns, but this was not confirmed. Instead, the L2 participants generally seemed to use both dual and plural marking to mark for dual. In fact, the results seem to suggest that they use dual and plural markings seemingly at random.

This could be another instance of cross-linguistic influence as Norwegian only has singular and plural markings, and therefore the L2 speakers do not differentiate between two markings that indicate more than one singular person. In addition, there is a similarity in the surface phonological patterns of the dual and plural forms, that might not be distinctive enough to separate the two. Another factor that can attribute to this performance is the fact that children acquire general cognitive categories before specific ones. An interesting observation regarding this is that the most proficient L2 speakers did perform better, suggesting the dual marking is indeed a feature acquired later in learning.

When it comes to the metalinguistic tasks, the picture is not as clear cut as above. While the control group behaves as expected in the Grammaticality Judgment Task as well as for the production task, the L1 group does not. There are, in fact, not as clear differences between the experimental groups for the metalinguistic tasks as for the production tasks.

For the first type of GJT items consisting of pictures and sentences that were not matched in regards to the number of people on them both, the results for the L2 group were again different from that of L1, even if not as clearly as in the production tasks. In general the L2 group judge most of the items acceptable, regardless of whether they were in fact correct or not, suggesting they do not

have a clear metalinguistic awareness of this grammatical feature in question. There is large variability between the participants for this test, as well, suggesting again that the most proficient L2 speakers perform more along the lines of the L1 speakers.

The findings for the L1 group are maybe the most interesting as they are not as high as for the production tasks. The L1 group performs to a large degree as expected, but there are some unexpected findings. For the first type of GJT items the L1 group performs along the lines of the control group, although there is greater variability within the L1 group. The interesting finding was in the results for the second type of GJT items where there was no agreement between the subject and the verb. Here the difference between the experimental groups was not as clear cut: The L2 group judged both types of items acceptable, both items with a) subjects marked for dual and verbs inflected for plural and items with b) subjects marked for plural and verbs inflected for dual. There was, however, less variability for a) than for b), indicating that there was a more unison judgment of items for a) as acceptable than for b). The L1 group performed along the lines of the L2 group, even if the majority judged the items unacceptable, as expected. There was, however, more variability within the group: For a) the mean scores for the L1 group show that there was an almost equal judgment for the items as acceptable than unacceptable. The majority judged the items in b) as bad, but even here there were some acceptable judgments. These results suggest that verb inflections marked for plural are the least marked ones as these are more accepted as grammatical even if they come with dual subjects than vice versa.

In sum, these results suggest that the metalinguistic awareness of the experimental groups are not as high as their productive competence. The differences in performance between L2 and L1 speakers is also clearest when it comes to this grammatical feature as opposed to the two others, and for the production task especially. The differences in results might be traced to input. As mentioned in chapter 2.3.3, personal pronouns marked for dual is not used similarly under all circumstances and this might not be clear for the L2 learner who has received such various levels of input and of differing quality. Omission

of marked features, i.e. a specific dual category, could also be an indication of a simplification strategy, which is a common feature of heritage language production (Montrul, 2010).

6   Conclusion

This master's thesis has investigated the grammar competence in Lule Sami speakers in regards to three grammatical features. In general, the results show that there are differences between the performance of L1 and L2 speakers. The L1 group performed as expected better than the L2 group. There is, in addition, greater variability in the performance of the L2 speakers, and the most proficient perform at L1 level. More significantly, there are differences in performance between the L1 and the control group. The younger L1 speakers do not perform at the level of the older L1 speakers across all tests.

For the consonant gradation, the focus should not be on the total numbers of the findings, but rather on the tendencies the they show. These findings suggest that even syllable non-words are the least marked non-words as the general performance is at its best for these. Of the even syllable non-words, non-words with quantitative alternations are performed better on. Especially the L2 speakers perform better on quantitative alternations; they do not produce many of the expected word forms for any of the other types of alternations. These findings suggest that the quantitative alternations are the least marked alternations in Lule Sami. The most interesting finding is in the performance of the control group when it comes to contracted non-words with -oj/-åj suffixes, which in part confirmed the hypothesis that the genitive form would be used even when the nominative form would be expected. The hypotheses for consonant gradation were thus generally confirmed.

According to the results for the grammar of spatial expressions case constructions are the most preferred spatial expression. The L2 group was the only one to perform, even if sometimes only slightly, as expected. The expected findings were thus not widely confirmed. Only L2 behavior when it comes to spatial relations of static locations was as expected, and only the contextual condition of "uncommon" relation between the trajector and landmark proved to be of relevance for choosing a postpositional construction. The behavior of the L2 group is likely a result of cross-linguistic influence.

The hypothesis that L2 speakers will tend to overgeneralize the use of personal pronouns marked for plural was not confirmed. The results suggest instead that the L2 group use both the dual and the plural marker to mark for plural. The most interesting finding was for the L1 group who were expected to use the expected personal pronouns to a larger degree. They performed as expected in production tasks, but they proved however not to have the same degree of metalinguistic awareness when it came to personal pronoun marking.

When it comes to dual marking generally and consonant alternations especially, it is apparent that the specific categories (i.e. the specific dual marker and the different types of alternations) have not been acquired to the same level across all language groups. For dual marking, the L1 group first and foremost does not perform as high when it comes to metalinguistic tasks as for production tasks. The L2 group in general does not seem to differ between the two markings at all, treating both as plural markings, indicating they have not yet acquired the specific dual category. It is, after all, a very specific language category that might require quite a lot of language exposure to acquire. The results may also be attributed to the quality of input, as well, as it may be variable. The input on personal pronoun marking is not always consistent since dual markings are not used in all situations. According to Tuolja and Kuoljok (1999), some obtain from dual marking when talking about animate entities, for instance, while others do not. Due to this inconsistent language input, it is therefore not surprising that young language speakers struggle with this grammatical feature.

Mastering consonant gradation especially is a complicated task for both L1 and L2 speakers. This is after all an extremely complex feature of Lule Sami grammar, and especially for language learners it may prove overwhelming. And this is only when consonant gradation is accounted for; in addition comes vowel alternations that are not always marked in orthography either. Figuring out of Lule Sami grade alternation is in other words a serious task for the language learner. The unmarked pure quantitative alternations seem to have been acquired across language groups, but at the instant the grade alternations become just a tad bit more complex, the results start to vary quite immensely.

Even within the supposed unmarked quantitative alternations the results are not consistent. This is seemingly due to the mismatch between how the alternations are marked in spelling on the one hand and how they are actually pronounced on the other. For a language learner it is extremely difficult to learn how to spell the words correctly when the system is so little transparent.

Input seems to be a key word in this discussion. The linguistic competence of the Lule Sami speakers in this study seem to have many of the characteristics of heritage language acquisition. Lule Sami is a minority language, and not only the quantity, but also the quality of input is crucial for acquisition. In general, the results can also be attributed to cross-linguistic influences from Norwegian. Lule Sami speakers today are bilinguals of both Norwegian and Lule Sami where Lule Sami most often is the weaker language. Grammatical features from the dominant language are often transferred to the less dominant one. See Genesee and Nicoladis (2006) and Argyri and Sorace (2007) for more evidence on the directionality of cross-linguistic influence. The observations in this study are typical of the changes that occur between languages that have long been in contact with one another.

6.1   Suggestions for further research

Very little research has been done on Lulesami, and especially in the field of language acquisition. This current master thesis is only a modest contribution, and more research is necessary in order to learn the characteristics of Lule Sami linguistic competence at different language levels.

When it comes to the grammatical features investigated in this study, consonant gradation has proven to be the most complex feature. A starting point for further research could be to at least identify all the gradation patterns. The next logical step would be to investigate children's acquisition of grade alternation. A more comprehensive test on the grammar of spatial expressions investigating more contextual conditions should be conducted. This current study looked at only a few semantic contextual conditions, and it should be interesting to see what

results other semantic variables, but also morphosyntactic ones would bring. The findings for dual marking were interesting. A study comparing different age groups in addition to language proficiency would clarify whether dual marking is a cognitive category acquired later in learning, and when.

In sum, research on all linguistic areas is sorely needed.

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Appendices

Appendix A: Wug and Cloze test

Namma: _____

Klássa: _____

1.

Dát la akta viebbma.
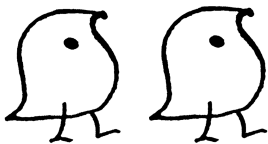
Dála la ájn akta.

La guokta dajs.

Dá li guokta _____.

2.

Eva, Siri ja Anne låhki. _____ låhki skåvllågirjijt.

3.
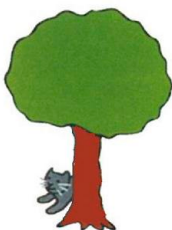
Gånnå la gáhtto? Hvor er katta?

Gáhtto le _____.

4.

Gåsstå Gáhti boahtá?

Gáhti _____ boahtá.

5.
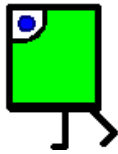
Dát la akta tjállje.
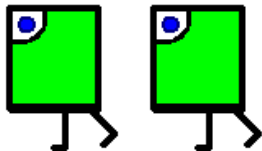
Dála la ájn akta.

La guokta dajs.

Dá li guokta _____.

6.
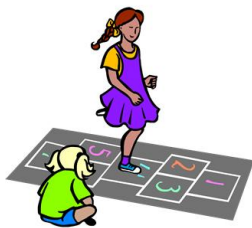
Inga ja Siggá ålggon ståhkaba. _____ paradisav gahppadibá.

7.
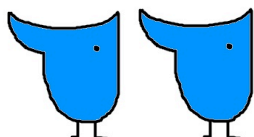
Dá li guokta gebmaga.
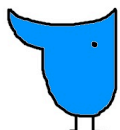
Nubbe gádoj.

Dåssju akta la báhtsám.

Dánna la akta _____ vil.

8.

Gåsi le Piera?

Piera la _____.

9.
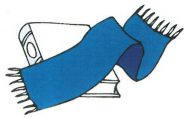
Gånnå le girjje?

Girjje le _____.

10.
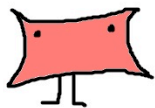
Dát la akta sássko
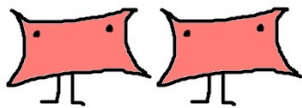
Dála la ájn akta.

La guokta dajs.

Dá lij guokta _____.

11.

Lisa vaddá vattáldagáv Jåvvåj.

Jåvvå vattáldagáv oadtju _____.

12.

Gånnå la bállo?

Bállo le _____.

13.
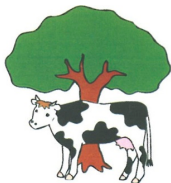
Gånnå le gussa?

Gussa le _____.

14.
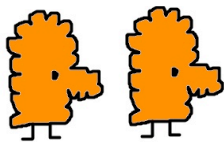
Dá li guokta viellaga.

Nubbe gádoj.

Dåssju akta la báhtsám.

Dánna la akta _____ vil.

15.

Gånnå le bállo?

Bállo le _____.

16.

Áhkko ja áddjá libá gievkanin. _____ gasskabiejvijt málestibá.

17.
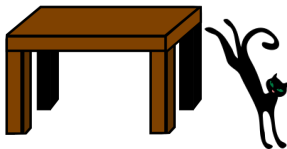
Gåsstå gáhtto tjielli?

Gáhtto _____ tjielli.

18.

Dát la akta ienna.
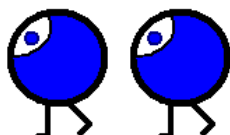
Dála la ájn akta.

La guokta dajs.

Dá lij guokta _____.

19.

Gåsstå Gáhti boahtá?

Gáhti boahtá _____.

20.

Dát la akta diellá.

Dála la ájn akta.

La guokta dajs.

Dá li guokta _____.

21.

Næjtso bårri. _____ lijkkuji pizzaj.

22.
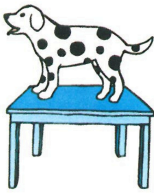
Gånnå le bena?

Bena le _____.

23.

Gånnå le guolle?

Guolle le _____.

24.

Dát la akta doajddo

Dála la ájn akta.

La guokta dajs.

Dá li guokta _____.

25.
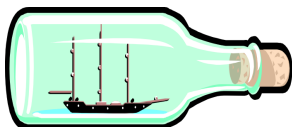
Gånnå le vanntsa?

Vanntsa le _____.

26.
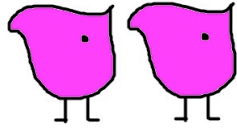
Dá li guokta válkká
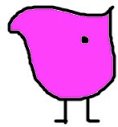
Nubbe gádoj.

Dåssju akta la báhtsám.

Dánna la akta _____ vil.

27.
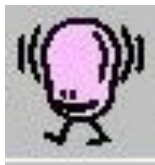
Dát la akta låvkki
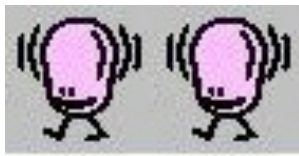
Dála la ájn akta.

La guokta dajs.

Dá lij guokta _____.

28.

Majt Bávva dahká?

Bávva girjev _____ tsåggå.

29.

Gåsstå Biehtár boahtá?

Biehtár _____ boahtá.

30.
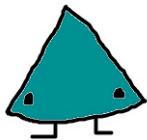
Dát la akta váhte.
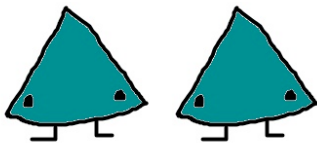
Dála la ájn akta.

La guokta dajs.

Dá li guokta _____.

31.

Gåsi Lisa tjágŋá?

Lisa _____ tjágŋá.

32.

Nuhtte ja Bávva ålggon libá. _____ fotbalov tjiektjaba.

33.

Dát la akta máhko.

Dála la ájn akta.

La guokta dajs.

Dá li guokta _____.

34.

åsi Jåvvå manná?

Jåvvå _____ manná.

35.

Dát la akta sjoagge.
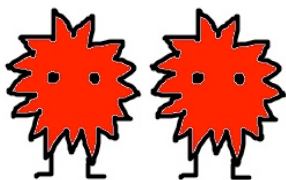
Dála la ájn akta.

La guokta dajs.

Dá li guokta _____.

36.
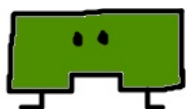
Dát la buolkka

Dála la ájn akta.

La guokta dajs.

Dá lij guokta _____.

37.

Anne, Inga ja Gáhti li tjerastallamin. _____ sabekhejsan tjåhkkåhi.

38.

Dá li guokta dællu.

Nubbe gádoj.

Dåssju akta la báhtsám.

Dánna la akta _____ vil.

39.

Gånnå le åjvuolle?

Åjvuolle le _____.

40.

Jåvvå ja Ábmut stráddun ståhkaba. _____ sádduslåhtav dahkaba.

41.
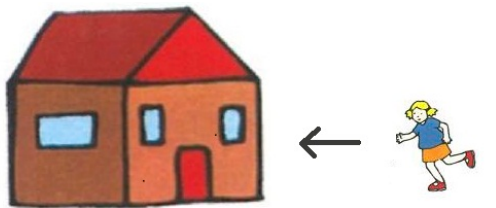
Gåsi la Siri?

Siri la_____.

42.
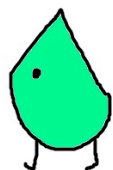
Dát la akta oabbo.
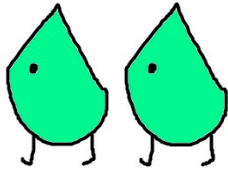
Dála la ájn akta.

La guokta dajs.

Dá li guokta _____.

43.

Gånnå li girje?

Girje li _____.

44.

Dát la akta biedde.
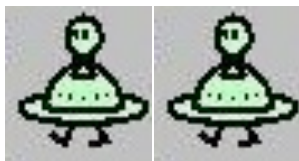
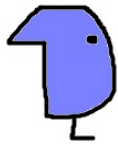Dála la ájn akta.

La guokta dajs.

Dá li guokta _____.

45.

Gånnå li girje?

Girje li _____.

46.

Dát la akta nuoddo.

Dála la ájn akta.

La guokta dajs.

Dá li guokta _____.

47.

Gånnå li girje?

Girje li _____.

48.
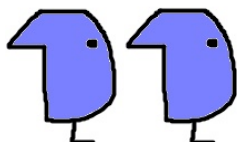
Dá li guokta viehttsu.

Nubbe gádoj.

Dåssju akta la báhtsám.

Dánna la akta _____ vil.

49.

Dát la akta tjuoktje.

Dála la ájn akta.

La guokta dajs.

Dá li guokta _____.

50.

Gåsi áhttje vádtsá?

Áhttje _____ vádtsá.

51.

Dát la akta iekso.
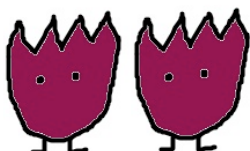
Dála la ájn akta.

La guokta dajs.

Dá li guokta _____.

52.
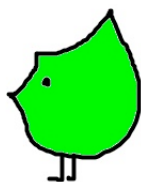

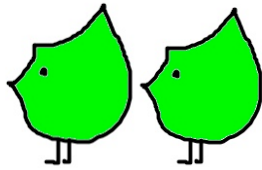Lisa ja Jåvvå ålggon libá. _____ jieŋa nanna sjiejssiba.

53.

Gåsi Lisa girjev biedjá?

Lisa girjev _____.

54.

Dát la akta luokte.

Dála la ájn akta.

La guokta dajs.

Dá li guokta _____

55.

Dá li guokta guohpiha.

Nubbe gádoj.

Dåssju akta la báhtsám.

Dánna la akta _____ vil.

56.

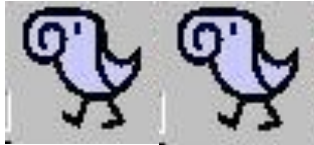Lisa, Jåvvå ja Biehtár lij ålggon. _____ riek ruvva tjerasti.

57.

Gånnå la skuovva?

Skuovva le _____.

58.

Dá li guokta látjasa.

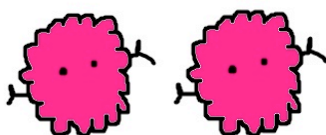Nubbe gádoj.

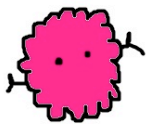Dåssju akta la báhtsám.

Dánna la akta _____ vil.

59.

Gåsi Lisa manná?

Lisa _____ manná.

60.

Dá li guokta sájkká.

Nubbe gádoj.

Dåssju akta la báhtsám.
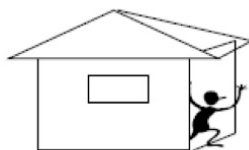
Dánna la akta _____ vil.

61.

Gånnå le Lars?

Sån tjåhkkåj _____.

62.

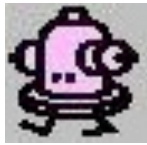Gáhti ja Ánndi libá ålggon. _____ tjuojggaba.

63.

Gåsstå Anne boahtá?

Anne boahtá _____.

64.

Dá li guokta viehkara.

Nubbe gádoj.

Dåssju akta la báhtsám.

Dánna la akta _____ vil.

65.

Gånnå le TV?

TV le _____.

66.
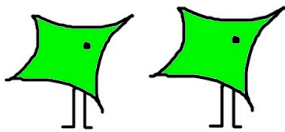
Dá li guokta guollu.
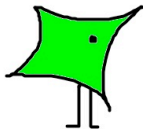
Nubbe gádoj.

Dåssju akta la báhtsám.

Dánna la akta _____ vil.

67.

Gåsi Piera tjåhkkit?

Piera _____ tjåhkkit.

68.
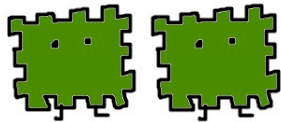
Dá li guokta åjvvå.
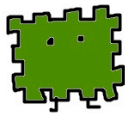
Nubbe gádoj.

Dåssju akta la báhtsám

Dánna la akta _____ vil.

69.

Gånnå li biebmo?

Biebmo li _____ .

70.
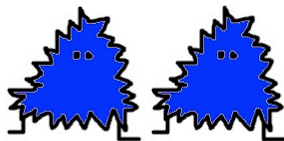
Dá li guokta láddu.
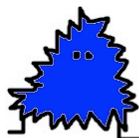
Nubbe gádoj.

Dåssju akta la báhtsám.

Dánna la akta _____ vil.

71.

Gånnå la gåhppå?

Gåhppå le _____.

72.

Dát la akta liegge.

Dála la ájn akta.

La guokta dajs.

Dá li guokta _____.

Appendix B: GJT

Namma:

Klássa:

1.

Máhttu lijkku pizzaj

1	2	3
Buorre	OK	Nievrre

_____

2.

Såj tjåhkkåhibá beŋka nanna.

1	2	3
Buorre	OK	Nievrre

_____

3.

Randi le várráj.

1   2   3

_____

4.

Máhttu ja Gáddjá volleybállov spelli.   1   2   3

Buorre   OK   Nievrre

_____

5.

Sij tjerasti dieváv vuolus.   1   2   3

Buorre   OK   Nievrre

_____

6.

Anne vattáldagáv Oles oadtju.   1   2   3

Buorre   OK   Nievrre

_____

7.
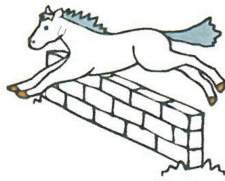
Bieddjis hæssta muvra badjel gahppá

1	2	3
Buorre	OK	Nievrre

_____

8.

Sij dålå birra tjåhkkåhibá ja márfijt basseba.

1	2	3
Buorre	OK	Nievrre

_____

9.
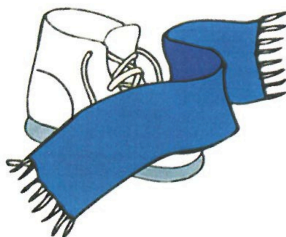
Skuovva le alek lijne duogen.

1	2	3
Buorre	OK	Nievrre

_____

10.

Jåvvå ja Anne viehkaba.   1   2   3

                                        Buorre   OK   Nievrre

_____

11.

Kloahkka le gávtsen.   1   2   3

                                        Buorre   OK   Nievrre

_____

12.
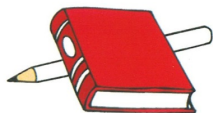
Girjje le penna åvddålin   1   2   3

                                        Buorre   OK   Nievrre

_____

13.

Sij lávllu.

1	2	3
Buorre	OK	Nievrre

_____

14.

Giedjek le æsko guoran.

1	2	3
Buorre	OK	Nievrre

_____

15.

Sij dåben spellaba lávvodakiehkeda.

1	2	3
Buorre	OK	Nievrre

_____

16.

Næjttso beŋka nanna tjåhkkåj aktan bednagijn.

1	2	3
Buorre	OK	Nievrre

_____

17.

Sij TV:v gæhttji.

1	2	3
Buorre	OK	Nievrre

_____

18.

Sij li alek bijla sinna.

1	2	3
Buorre	OK	Nievrre

_____

19.

Siggá tjágŋá goade sisi.

1	2	3
Buorre	OK	Nievrre

_____

20.

Ruoppsis girjje le bievde nanna.

1	2	3
Buorre	OK	Nievrre

_____

21.

Lise goahtáj viehká

1	2	3
Buorre	OK	Nievrre

_____

22.

Káffa la gåhpån   1   2   3

                                       Buorre   OK   Nievrre

_____

23.

Sij gávkas skåvllåbargojt dahkaba.   1   2   3

                                         Buorre   OK   Nievrre

_____

24.

Inga la goaden ja gæhttjá ålgus vinndegav.   1   2   3

                                         Buorre   OK   Nievrre

_____

25.

Sij alek sofan tjåhkkåhi.

1	2	3
Buorre	OK	Nievrre

_____

26.

Sij gasskabiejvijt málesti. gievkanin.

1	2	3
Buorre	OK	Nievrre

_____

27.
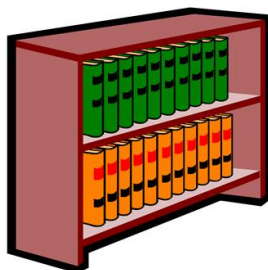
Girje li hilldo sinna.

1	2	3
Buorre	OK	Nievrre

_____

28.
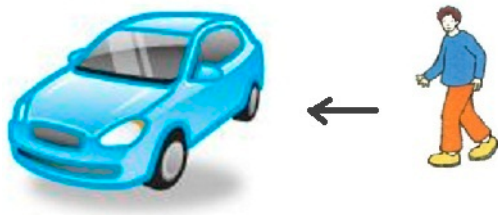
Ulmusj alek skirtojn alek bijllaj vádtsá.	1	2	3
	Buorre	OK	Nievrre

_____

29.

Assko le skuovan	1	2	3
	Buorre	OK	Nievrre

_____

30.

Sij njálga hamburgerijt bårråba.	1	2	3
	Buorre	OK	Nievrre

_____

31.

Gáhti le ståvlån   1   2   3

                                                 Buorre   OK   Nievrre

_____

32.
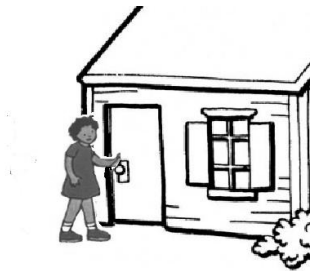
Sån goahtáj manná.   1   2   3

                                                 Buorre   OK   Nievrre

_____

33.

Såj skåvllåsaljon duok diek viehki.   1   2   3

                                                 Buorre   OK   Nievrre

_____

34.
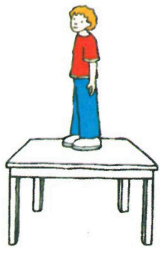
Adam tjuodtju bievde nanna

1	2	3
Buorre	OK	Nievrre

_____

35.

Sij girjev låhki.

1	2	3
Buorre	OK	Nievrre

_____

36.

Sjærffa le ståvlå nanna

1	2	3
Buorre	OK	Nievrre

_____

37.
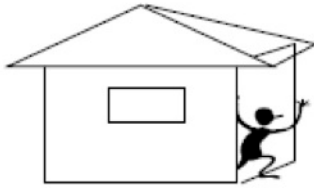
Jåvvå goade sissta viehká	1	2	3
	Buorre	OK	Nievrre

_____

38.

Gáhtto le gåhpå sinna	1	2	3
	Buorre	OK	Nievrre

_____

39.

Anna ja Piera li ålggon rijddimin.	1	2	3
	Buorre	OK	Nievrre

_____

40.
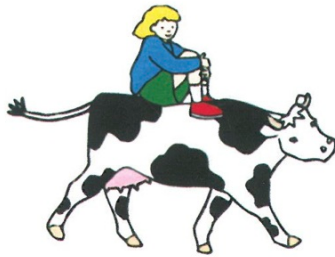
Berit gusá nanna tjåhkkåj

1	2	3
Buorre	OK	Nievrre

_____

41.

Sij ruoppsis giedjegijt tjuoggi.

1	2	3
Buorre	OK	Nievrre

_____

42.

Dållå vuoná sinna buollá

1	2	3
Buorre	OK	Nievrre

_____

43.

Næjttso muvran tjåhkkåj

	1	2	3
	Buorre	OK	Nievrre

_____

44.

Æssko tjuodtju lámpon

	1	2	3
	Buorre	OK	Nievrre

_____

45.

Æhppala li båksan

	1	2	3
	Buorre	OK	Nievrre

_____

46.

Biehtár hyhto sissta viehká.

	1	2	3
	Buorre	OK	Nievrre

_____

47.

Nææjtso gålmås nav tjábbát lávlloba.

	1	2	3
	Buorre	OK	Nievrre

_____

48.

Giedjegasj le bievden.

	1	2	3
	Buorre	OK	Nievrre

_____

Appendix C: Parental consent form

Forespørsel om deltakelse i prosjekt til masteroppgave

Til foreldre/foresatte med barn som får undervisning i lulesamisk på skolen.

Jeg studerer ved NTNU i Trondheim og holder på med en mastergrad i språkvitenskap. Jeg skal skrive masteroppgave om lulesamisk språk og i den sammenheng vil jeg gjøre en undersøkelse om samisktalenes språkbruk, deriblant elever med samisk i skolen. Derfor kommer denne forespørselen om deltakelse i prosjektet slik at jeg får skrevet min masteroppgave som planlagt.

Undersøkelsen vil ha form som et oppgavesett med varierte språkoppgaver som vil bli gjennomført i skoletiden. Målet med undersøkelsen er som sagt å kartlegge den faktiske språkbruken til barna,. Det vil ikke være noe fokus på riktige og gale svar, heller ikke på hva barna kan eller ikke kan. Hensikten er rett og slett å undersøke hvordan barna bruker det språket de har.

Resultatene av undersøkelsen vil bare håndteres av meg eller mine veiledere og vil være fullstendig anonymisert. I første omgang lagres alle resultatene med en personkode som tilsvarer hver elev på en adskilt navneliste slik at de ikke oppbevares på samme sted. Ved prosjektets slutt i juni 2013 vil dataene anonymiseres fullstendig ved at navnelistene og andre personopplysninger slettes helt.

Det har vært lite forskning på samisk språk. Kunnskap om samisk språkbruk er av stor betydning for opplæring og videreutvikling av samisk språk. Skolen er en av de viktigste språkarenaene og tilpasset opplæring utfra elevens språknivå er av betydning i språkinnlæringen. Derfor er det viktig at så mange som mulig deltar i prosjektet.

Deltakelse er selvsagt frivillig og hvis dere godtar at barnet ditt deltar i prosjektet kan dere likevel når som helst ombestemme dere og trekke dere fra undersøkelsen. Hvis dere sier ja ber jeg dere samtidig fylle ut det vedlagte skjemaet om språklig bakgrunn. Denne informasjonen vil behandles konfidensielt på lik linje med andre personopplysninger.

Prosjektet er godkjent av Norsk Samfunnsvitenskapelig Datatjeneste, personvernombudet for forskning. Undersøkelsen vil senest gjennomføres innen november 2012.

Ta gjerne kontakt hvis dere har spørsmål!

På forhånd tusen takk for hjelpen!

Med vennlig hilsen,

Sandra Nystø Ráhka
+ 47 917 92 900
sandra.rahka@gmail.com

☐ Ja, jeg godtar at mitt barn deltar i prosjektet

_____   _____   _____

Barnets navn   Sted/Dato   Foreldres/foresattes
                                                                    underskrift

---

Appendix D: Language background questionnaire

Språklig bakgrunn:

1. Barnets navn: _____ Barnets fødselsdato: _____

2. Barnets førstespråk (kan godt være flere språk):

_____

Øvrige språk barnet snakker:

_____

_____

_____

3. Foreldre/foresattes førstespråk:

_____

_____

3. Hjemmespråk

Hvilket språk snakkes hjemme:

   Bare samisk

   Bare norsk

   Både samisk og norsk

   Andre språk: _____

Hvis både samisk og norsk snakkes hjemme, hvilket språk brukes mest (fyll inn det som passer, gjerne flere):

   Mest samisk

   Litt samisk

Mest norsk

Litt norsk

Begge språk snakkes omtrent like like mye

4. Barnets språkbruk

Barnet snakker mest samisk

Barnet snakker mest norsk

Barnet snakker omtrent like mye norsk og samisk

Andre språk: _____

5. Hvem snakker samisk til barnet:

Foreldre

Søsken

Besteforeldre

Tanter, onkler og øvrig familie

Venner

Andre: _____

6. Hvem snakker barnet samisk med:

Foreldre

Søsken

Besteforeldre

Tanter og onkler og øvrig familie

Venner

Andre: _____

7. Har barnet noen vanskeligheter som kan påvirke språklæring:

Ja

Nei

Hvis ja, spesifiser gjerne nedenfor (valgfritt):

```
┌─────────────────────────────────────────────┐
│                                               │
│                                               │
│                                               │
│                                               │
└─────────────────────────────────────────────┘
```

8. Bruk gjerne kommentarfeltet under til å komme med flere opplysninger som du tror kan være relevant:

```
┌─────────────────────────────────────────────┐
│                                               │
│                                               │
│                                               │
│                                               │
└─────────────────────────────────────────────┘
```

Tusen takk for hjelpen!
Gijtto viehke åvdås!

Sandra