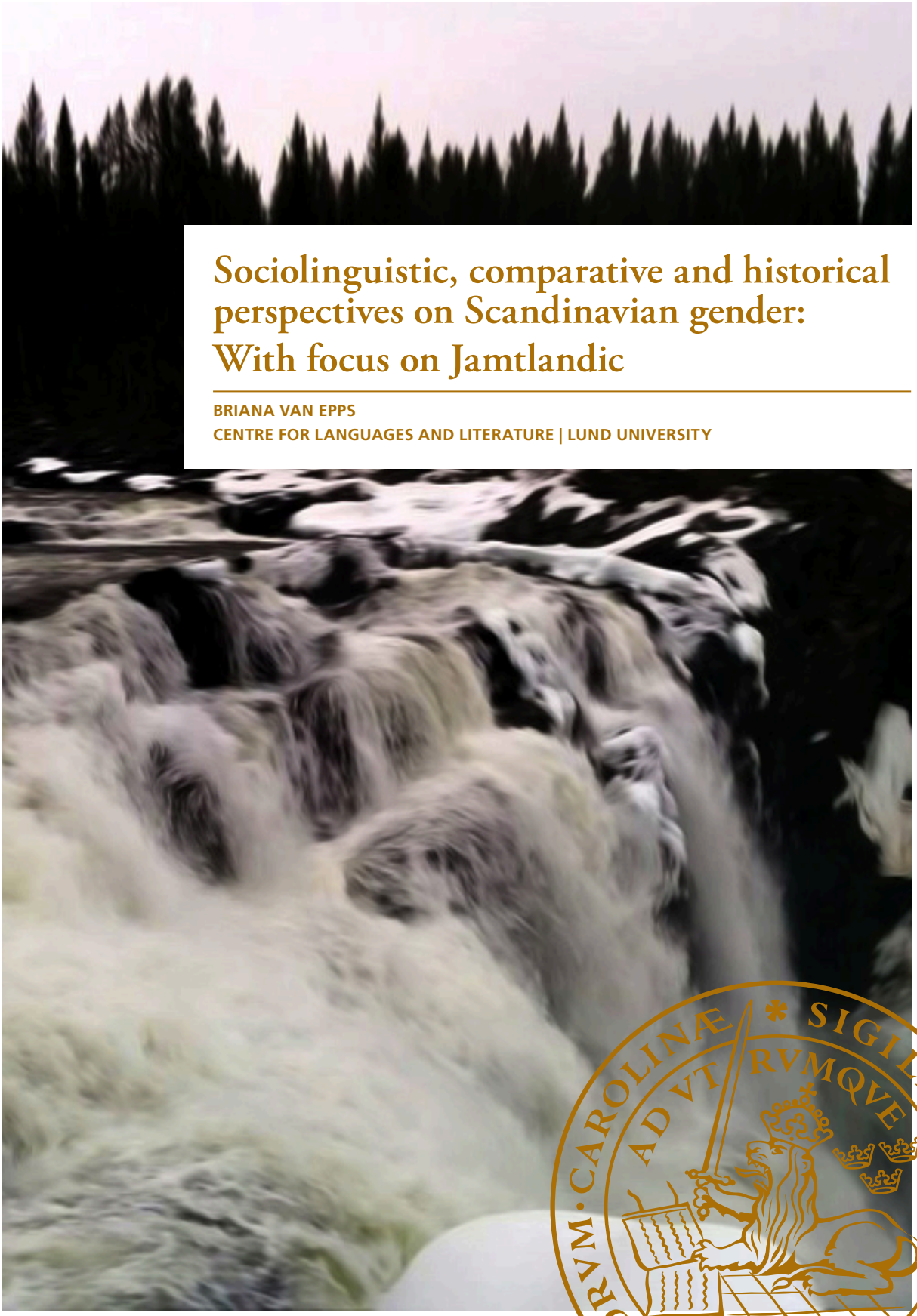
Sociolinguistic, comparative and historical perspectives on Scandinavian gender: With focus on Jamtlandic

Van Epps, Briana

2019

Document Version:
Publisher's PDF, also known as Version of record



Sociolinguistic, comparative and historical perspectives on Scandinavian gender: With focus on Jamtlandic

BRIANA VAN EPPS
CENTRE FOR LANGUAGES AND LITERATURE | LUND UNIVERSITY

Sociolinguistic, comparative and historical perspectives on Scandinavian gender

Sociolinguistic, comparative and historical perspectives on Scandinavian gender

With focus on Jamtlandic

Briana Van Epps

LUND
UNIVERSITY

DOCTORAL DISSERTATION

by due permission of the Faculties of Humanities and Theology,
Lund University, Sweden.
To be defended at Hörsal H104, Centre for Languages and Literature,
Friday June 14, 2019, 10:15-12:00

Faculty opponent
Professor Hans-Olav Enger

Department of Linguistics and Scandinavian Studies, University of Oslo

Organization	Document name
LUND UNIVERSITY	DOCTORAL DISSERTATION
Centre for Languages and Literature	**Date of issue:** 14 June 2019
Author: Briana Van Epps	Sponsoring organization

Title and subtitle

Sociolinguistic, comparative, and historical perspectives on Scandinavian gender: With focus on Jamtlandic

Abstract

The present thesis investigates gender assignment in Jamtlandic from a sociolinguistic and historical/comparative perspective. Jamtlandic is a language variety spoken in northwestern Sweden in the province of Jämtland. It maintains a three-gender system, in contrast to Standard Swedish, which has a two-gender system. Study 1 of the thesis looks at Jamtlandic gender assignment from a sociolinguistic perspective, investigating how linguistic and extralinguistic factors contribute to variation in the way speakers use grammatical gender. The material for this study is an experiment conducted with 50 participants using picture stimuli, along with a sociolinguistic questionnaire. Results from Study 1 indicate that while the three-gender system is still robust in Jamtlandic, it shows signs of influence from Standard Swedish. Speakers' gender usage is influenced by both linguistic and sociological factors. In particular, the youngest speakers use a gender system that is very similar to Standard Swedish.

Study 2 focuses on establishing some salient gender assignment principles for Jamtlandic. The material for this study is a 1,029-item wordlist collected from fieldwork with Jamtlandic speakers. Drawing on past studies on gender assignment in Scandinavian, it proposes semantic, morphological, and phonological tendencies. Assignment tendencies are evaluated based on how well they cover the material, how well they fare when in competition with other tendencies, and the results of a multinomial logistic regression analysis. The results show that semantic, phonological, and morphological principles are all important for gender assignment. The strongest assignment tendencies are those based on plural patterns, as well as semantic tendencies related to the semantic core of biological sex. In addition, modern loanwords show an increased percentage of masculine gender, compared to the overall material.

Study 3 uses the wordlist collected for Study 2, and adds cognates and gender in Old Norse, Old Swedish, Norwegian, Nysvenska, and Elfdalian. This study compares gender assignment in these six three-gender Scandinavian varieties, looking primarily at instances in which cognate words are assigned different genders across languages. The results of Study 3 show that various factors (gender and declension in Old Norse, word frequency, loan status, and animacy) influence the likelihood of a lexeme to change gender. These changes can also be accompanied by lexemes acquiring certain characteristics that are indicative of a particular gender in the language (such as the addition of a word-final vowel or a derivational suffix).

Key words: grammatical gender, Jamtlandic, Swedish dialects, dialectology, dialect loss, language variation and change, gender assignment, Scandinavian, gender variability, diachrony, Old Norse, Old Swedish, Swedish, Norwegian, Jamtlandic, Elfdalian

Classification system and/or index terms (if any)

Supplementary bibliographical information		**Language:** English
ISSN		**ISBN:** 978-91-88899-38-5 (print)
Recipient's notes	**Number of pages:** 326	Price
	Security classification	

Sociolinguistic, comparative and historical perspectives on Scandinavian gender

With focus on Jamtlandic

Briana Van Epps

LUND
UNIVERSITY

Faculties of Humanities and Theology
Centre for Languages and Literature

ISBN 978-91-88899-38-5 (print)
ISBN 978-91-88899-39-2 (digital)

Printed in Sweden by Media-Tryck, Lund University
Lund 2019

To Mum, Dad, and Little Sis

Contents

Acknowledgements

This thesis would never have been completed without the many people who have guided and supported me throughout my years as a PhD student. First and foremost, I would like to thank my main supervisor, Gerd Carling. Her expertise in linguistic research and her willingness to help me through any issues I was facing have been essential to the writing of this thesis and my development as a researcher. Thank you, Gerd, for your energy and enthusiasm, and for always believing in me! I could not have done this without you.

I would also like to thank Chundra Cathcart and Yair Sapir, my second supervisors at various points in my PhD career. In particular I would like to thank Chundra for his guidance with the quantitative portion of this thesis, and Yair for his help with the comparative gender project, field work in Jämtland, and insightful comments on drafts.

In addition to my supervisors, many other people have provided academic guidance for this thesis. I am deeply grateful to to Joost van der Weijer and Johan Frid for their assistance with the statistical analyses. I would also like to send a heartfelt thanks to Lars-Olof Delsing, whose comments at my final seminar were very helpful in the final stages of editing. Additional thanks goes to Greville Corbett and the Surrey Morphology Group for an enriching stay abroad in the UK.

Thank you also to all of the members of the linguistics department, who were always ready to share in friendly conversation and provide words of encouragement. Special thanks goes to the other PhD students in the department. For those of you who finished the PhD before me, thank you for paving the way, and for all your support. For those who are still in the process, *you can do it!* In particular, I would like to thank Andrea Schremm for sharing an office, late lunches, and countless conversations that kept me going. Thank you also to Malin Svensson-Lundmark for introvert talks when I needed it the most. Thank you also to all of the friends outside of the linguistics department who have been there for me over the past few years. Your support has meant so much!

This thesis is based on the fascinating language of the people of Jämtland, and would not exist without the many participants who took part in my experiments and data collection. Thank you for your willingness to share your language with me, and for your enthusiasm about my research! In particular, I would like to thank Christina Bengtsson for helping me to organize my field trips to Oviken, recruit participants, and always being available via email for my questions about *oviksmål*. I would also

like to send a special thanks to Björn and Ingemo Månsson, who always went above and beyond to make sure I felt at home in Oviken. I would like to thank Tommy Törnqvist and Bo Oscarsson for helping me organize my trip to Aspås, and Siv Gahlin for being so welcoming during my stay there. Thanks also go to Sara Adelhult for a warm welcome to Hammerdal, and to Per Gustaf Holmström for assistance with my field trip to Järpen.

The penultimate and most meaningful thanks goes to my family – you have been a huge source of support all the way from the USA, and I wouldn't have made it without you! I am unendingly grateful to my parents for their love and unwavering belief in me. Thank you for always encouraging my love of language, regardless of which quirky forms it took (including learning Swedish!). And thank you for putting up with me having to work all the time during my visits to California. I'm looking forward to a real vacation now!

Finally, I would like to thank Agnetha, Björn, Benny, and Anni-Frid, whose enchanting songs crossed 8,593.85 km[1] and three decades to lead me to where I am now. *Thank you for the music!*

[1] Distance from Polar Studios in Stockholm to my childhood home in California (courtesy of Google Maps).

Abstract

The present thesis investigates gender assignment in Jamtlandic from a sociolinguistic and historical/comparative perspective. Jamtlandic is a language variety spoken in northwestern Sweden in the province of Jämtland. It maintains a three-gender system, in contrast to Standard Swedish, which has a two-gender system. Study 1 of the thesis looks at Jamtlandic gender assignment from a sociolinguistic perspective, investigating how linguistic and extralinguistic factors contribute to variation in the way speakers use grammatical gender. The material for this study is an experiment conducted with 50 participants using picture stimuli, along with a sociolinguistic questionnaire. Results from Study 1 indicate that while the three-gender system is still robust in Jamtlandic, it shows signs of influence from Standard Swedish. Speakers' gender usage is influenced by both linguistic and sociological factors. In particular, the youngest speakers use a gender system that is very similar to Standard Swedish.

Study 2 focuses on establishing some salient gender assignment principles for Jamtlandic. The material for this study is a 1,029-item wordlist collected from fieldwork with Jamtlandic speakers. Drawing on past studies on gender assignment in Scandinavian, it proposes semantic, morphological, and phonological tendencies. Assignment tendencies are evaluated based on how well they cover the material, how well they fare when in competition with other tendencies, and the results of a multinomial logistic regression analysis. The results show that semantic, phonological, and morphological principles are all important for gender assignment. The strongest assignment tendencies are those based on plural patterns, as well as semantic tendencies related to the semantic core of biological sex. In addition, modern loanwords show an increased percentage of masculine gender, compared to the overall material.

Study 3 uses the wordlist collected for Study 2, and adds cognates and gender in Old Norse, Old Swedish, Norwegian, Nysvenska, and Elfdalian. This study compares gender assignment in these six three-gender Scandinavian varieties, looking primarily at instances in which cognate words are assigned different genders across languages. The results of Study 3 show that various factors (gender and declension in Old Norse, word frequency, loan status, and animacy) influence the likelihood of a lexeme to change gender. These changes can also be accompanied by lexemes acquiring certain characteristics that are indicative of a particular gender in the language (such as the addition of a word-final vowel or a derivational suffix).

List of original papers

Study 1

Van Epps, B., & Carling, G. (2017). From three genders to two: the sociolinguistics of gender shift in the Jämtlandic dialect of Sweden, Acta Linguistica Hafniensia.[2]

Study 2

Van Epps, B., & Carling, G. (submitted). Patterns of gender assignment in the Jamtlandic variety of Scandinavian.

Study 3

Van Epps, B., Carling, G., & Sapir, Y. (submitted). Gender assignment in six Scandinavian languages: Patterns of variation and change.

[2] Reprinted with permission from the Linguistics Circle of Copenhagen

Abbreviations

f	Feminine gender
Elf	Elfdalian
JL	Jamtlandic
m	Masculine gender
n	Neuter gender
Nsv	Nysvenska
No	Norwegian (Nynorsk)
ON	Old Norse
OSw	Old Swedish
SAOB	Svenska akademiens ordbok
Sw	Swedish (Standard Swedish)
WOLD	World Loanword Database

1. Introduction

Gender in Scandinavian languages has been extensively studied, but the topic still holds diverse possibilities for research. This is partially because gender assignment in these languages tends to be opaque, relying on a combination of semantic, morphological, and phonological principles. Additionally, gender assignment in Scandinavia's non-standard dialects can differ significantly from that of the standard languages. As many of these dialects are undergoing significant changes in their gender systems, they provide a lens through which synchronic and diachronic developments in Scandinavian gender systems can be analyzed.

Significant advances can be made in the study of gender in the Scandinavian languages by looking at these non-standard dialects, especially those which are inadequately undescribed. A substantial part of the present thesis focuses on Jamtlandic, a Scandinavian variety spoken in northern Sweden at the Norwegian border. In addition, the thesis takes a comparative-contrastive perspective, looking also at other three-gender varieties of Scandinavian. The thesis looks at three-gender systems at various points in time, both extinct languages (Old Norse, Old Swedish, and Nysvenska) and living languages (Norwegian, Jamtlandic, and Elfdalian); it also discusses both official languages (Norwegian and Nysvenska) and nonstandard language varieties (Jamtlandic and Elfdalian). This approach allows us to better understand the ways in which the Scandinavian three-gender system has developed, across time and through various social dimensions.

This thesis is the first significant academic work that focuses on Jamtlandic. Jamtlandic is considered by some to be a dialect of Swedish, but others see it as a variety separate from Swedish and more closely related to West Scandinavian varieties. The genealogical relationship can be difficult to pinpoint, due to centuries of influence from the surrounding Norwegian and Swedish varieties (see Section 2.3.2). Regardless, it is clear that Jamtlandic deviates from Standard Swedish in many respects. One substantial difference concerns grammatical gender, as Jamtlandic maintains a three-gender system, while Standard Swedish has lost the masculine-feminine distinction and now only distinguishes two genders. The first study of the thesis takes a broad approach to grammatical gender in Jamtlandic, looking at the overall status of the three-gender system in Jamtlandic, as well as the impact of sociolinguistic factors on gender usage. The second study looks at the assignment principles that operate in Jamtlandic, here also taking into account the state of the three-gender system, and how pressure from Standard Swedish has affected gender

assignment. The third study looks at gender assignment from a comparative perspective, focusing on Jamtlandic and five related Scandinavian languages.

In Study 1, grammatical gender is examined from a sociolinguistic perspective. The aim of this study is twofold: first, to determine the degree to which the two-gender system of Standard Swedish has influenced the three-gender system of Jamtlandic, and second, to see how various linguistic and extralinguistic factors influence traditionalness. For this study, we take an experimental approach, conducting fieldwork with native speakers in Jämtland. Profiled stimuli were employed to elicit grammatical gender agreement for indefinite articles, definite articles, and anaphoric pronouns. The linguistic factors investigated are traditional gender (masculine or feminine) and agreement type (definite article, indefinite article, or anaphoric pronoun). The sociological factors are age, speaker gender, geographical location, socioeconomic status, and language attitudes.

Study 2 looks more closely at the mechanisms underlying gender assignment. For this study, we use a word list with 1,029 Jamtlandic nouns and their gender. This data was collected through fieldwork with native speakers in Jämtland. From this material, we attempt to pinpoint assignment tendencies for Jamtlandic, considering semantic, morphological, and phonological factors. We establish a few assignment principles that appear to operate in Jamtlandic, and then test the strength of these principles by analyzing how they fare when in competition with each other, and how well they cover our material. We also conduct a statistical analysis using multinomial logistic regression to determine whether or not each assignment principle significantly influences gender assignment. In addition, we look at gender assignment in modern loanwords to see if the tendencies for modern words are different from the rest of the material. A difference in assignment tendencies could point to ongoing changes in the gender system of Jamtlandic.

In Study 3, the scope is widened to compare gender assignment in six different Scandinavian language varieties. The material for Study 3 is a data set with 1,129 cognate sets and genders in Jamtlandic, Old Norse, Old Swedish, Norwegian,[3] *nysvenska*,[4] and Elfdalian. The basis for the Jamtlandic data used for this study came from the wordlist we used in Study 2. Dictionaries were used to collect the data for the other five language varieties. The study takes a comparative approach, focusing on instances in which the gender assignment differs between languages. First, we look at which factors are significant in predicting whether or not a noun will have variable gender. For this we perform a statistical analysis with binomial logistic regression,

[3] This thesis mainly looks at the *nynorsk* written standard. There is another written standard for Norwegian called *bokmål*; we choose to look at *nynorsk* in Study 3 because it consistently distinguishes three genders (this is optional in *bokmål*) and it more closely mirrors the Norwegian spoken dialects. In the thesis the language under investigation is referred to as *Norwegian* for the sake of simplicity, though *nynorsk* is a more precise term.

[4] Although the term *nysvenska* can sometimes be used to refer to the variety of Swedish spoken up to the present day, here we use it to refer to the variety of Swedish spoken from around 1526 to 1880.

with ‘change/stable cognates’ as the dependent variable; and Old Norse gender, Old Norse declension, loan status, frequency, animacy, mass/count, and abstract/concrete as independent variables. Next, we investigate some common patterns of change, looking at the development of Old Norse weak nouns in other language varieties, as well as derivational suffixes and change motivated by semantics. This is the first large-scale comparative study on gender in Scandinavian languages, and as such it sheds light on the mechanisms through which gender assignment has evolved in these languages.

2. Background

This section presents the theoretical background on which the thesis is based. The history and language of Jämtland, as well as basic theories of grammatical gender, are important as a background to all of the studies. Study 1 is additionally influenced by past sociolinguistic studies of Swedish dialects, in particular those that deal with three-gender systems. Study 2 relies on theories of gender assignment, both in the Scandinavian languages and in general. Study 3 draws from methods of comparative and historical linguistics, as it compares the gender systems of six different Scandinavian languages.

2.1 Grammatical gender

The most widely quoted definition of grammatical gender comes from Hockett (1958), through Corbett's (1991) famous volume *Gender*: 'Genders are classes of nouns reflected in the behavior of associated words.' Gender is, therefore, a grammatical feature that is primarily defined by the influence it exerts on other elements. Gender agreement can appear on articles, adjectives, verbs and pronouns, and more rarely on adpositions, conjunctions, and adverbials (Audring 2017). Languages that have gender vary as to the number of genders, ranging from only two genders (as in French, Spanish, and Swedish) to twenty or more genders. Systems with many genders are traditionally referred to as *noun class systems*, but these are in principle no different from gender systems (Corbett 1991). The choice of term is often dependent on traditions of scholarship within a language area; in the Indo-European tradition these systems of noun classification are usually referred to as *gender systems*.

Some linguists draw the distinction between *lexical* and *referential* gender (Dahl 2000); this is also referred to as *syntactic* versus *semantic* agreement (Corbett 1979, 1991). Lexical gender is the gender a noun possesses in a general sense, while referential gender is the gender a noun receives in a specific context. Referential gender can vary for some nouns based on the type of agreement that is used (i.e., articles, pronouns, and adjectives used predicatively or attributively); see Dahl (2000). The focus of this thesis is lexical, or syntactic gender, so I am primarily interested in the gender a noun possesses in a more general sense.

2.1.1 Assignment

Within the subject of grammatical gender, *assignment* has long been an area of interest due to its complexity and wide variation across languages of the world. Some languages have assignment systems that are rather straightforward: These languages tend to assign gender based on cognitively salient semantic categories such as biological sex and/or animacy. An example of such a straightforward system comes from Tamil, in which all nouns denoting males take masculine gender, all nouns denoting females take feminine gender, and all nouns denoting inanimate objects take neuter gender (Corbett 1991:8). Other languages assign gender based on morphological or phonological properties (together known as *formal assignment*) in addition to having a 'semantic core'. Russian provides a classic example of morphological assignment: after semantic criteria have been applied (human males are masculine and human females are feminine), gender can be assigned by inflectional class (for in-depth discussions see Corbett 1982, 1991; Corbett & Fraser 2000). In another type of morphological assignment, derivational suffixes assign a specific gender to those words which possess them. This is a common property of Germanic languages and is present in the Scandinavian languages (Corbett 1991; Källström 1996; Trosterud 2001, 2006). Finally, some languages assign gender based on the phonological shape of the word. An example of a language with a phonological assignment system is Qafar, in which male humans are assigned masculine gender, and female humans are assigned feminine gender. The remainder of nouns are assigned gender according to phonological principles: nouns ending in an accented vowel are feminine, and all others are masculine (Corbett 1991:51–52).

There has been much ongoing debate regarding how to characterize formal assignment systems: which assignment principles should be applied, which rules are valid, and which types of rules take precedence in cases of conflict. Various theories and frameworks have been proposed to deal with these issues. One approach was developed by Steinmetz (1985, 1986, 2006); studies within this paradigm propose numerous assignment rules which are tallied for each noun in order to determine which gender is assigned. Ties are resolved through the 'default gender' hierarchy: the most prominent gender takes precedence. Variations of this heavily rule-oriented approach include Rice (2006), who adapts the Steinmetzian approach to fit within Optimality Theory. Trosterud (2001, 2006) also follows the same general principles as Steinmetz to develop an extensive list of assignment rules for Norwegian, though he does not focus on how conflicts in the system are resolved.

More conservative approaches to assignment are taken by Corbett (1991), Corbett and Fraser (2000), and Nesset (2006). In these approaches, semantic assignment rules based on the 'semantic core' (biological sex or animacy) are central and take precedence over formal assignment rules. Other non-core semantic rules are secondary. In contrast to the approach favored by Steinmetz, there is reluctance to propose many semantic rules that are not based on the semantic core. Indeed, a

subject of much debate within this area is how to determine which kinds of semantic assignment rules are valid. This topic is dealt with at length in Thornton (2009) and Enger (2009). Thornton (2009) finds through an analysis of loanwords in Italian that only three semantic principles can assign gender: *association*, by which a word copies the gender of a noun with which it is associated; *equivalency*, by which a word copies the gender of a specific noun which it its equivalent; and the *basic level hyperonym constraint*, by which a word inherits the gender of a specific noun which is its hyperonym. Enger (2009) defends the validity of non-core ('crazy') semantic rules, but argues that not all of those non-core rules which have been proposed are valid. He puts forth several criteria for determining whether a 'crazy' rule is valid, arguing that a rule should fulfill at least two of the criteria, in addition to diachronic productivity, in order to qualify as a valid assignment rule.

Previous studies have established some principles for gender assignment in the Scandinavian languages. Most previous work has focused on gender assignment in the standard languages (Trosterud 2001 for Norwegian, Trosterud 2006 for Old Norse, Källström 1996 for Swedish, Steinmetz 1985 for Icelandic), or on dialects of Norwegian (Kvinlaug 2011, Enger 2011, Enger & Corbett 2012). These studies have found generalizations for assignment based on semantic, morphological, and phonological principles. Researchers agree that Scandinavian gender systems have a semantic core based on biological sex, in which words denoting males are masculine, and words denoting females are feminine. In addition, it is uncontroversial that certain derivational suffixes can assign gender (i.e., *the suffixes -dómr, -skapr,* and *-ari are masculine in Old Norse* (Trosterud 2006:1451); *the suffix -eri is neuter in Swedish and Norwegian* (Källström 1996:159, Trosterud 2001:44). Some studies have proposed generalizations for gender assignment based on plural inflection; for example, *words with -ar plural are common gender* (Källström 1996). Also common are generalizations based on phonological structure: *disyllabic words ending in unstressed -e are feminine in Norwegian* (Trosterud 2001:35; see also Trosterud 2006, Källström 1996); *words ending in -rg, -ft, -o:d, vd, -pt, -kt are feminine* (Trosterud 2001:47; see also Trosterud 2006). Many of these studies posit semantic rules based outside of the semantic core (such as *words denoting functional hollows are neuter, words denoting dairy products are masculine, words for native trees are feminine* (Trosterud 2001:41); *words for tools and vehicles are common gender in Swedish,* and *words for articles of clothing are common gender in Swedish* (Källström 1996:154).

Studies 2 and 3 focus on assignment, and both semantic and formal assignment principles are considered. Although we examine some non-core semantic tendencies, our approach most closely aligns with Corbett's, and we are careful about positing too many semantic rules.

2.2 The gender systems of Scandinavian languages

The ancestor to the modern Scandinavian languages is known as *Common Scandinavian*, and was spoken from around 550 to 1050 AD. Common Scandinavian distinguished three genders: masculine, feminine, and neuter. After this period, the Scandinavian languages split into two main groups: West Scandinavian or West Nordic, which encompasses Old Norwegian, Old Faroese, and Old Icelandic; and East Scandinavian or East Nordic, which encompasses Old Danish, Old Swedish, and Old Gutnish. These are the ancestors of the present-day Scandinavian languages, reflecting the standard varieties that exist today. Nevertheless, the Scandinavian languages can best be seen as a dialect continuum, both historically and at the present day (Haugen 1976).

Today, the Scandinavian languages feature a surprising amount of diversity in their gender systems. Scandinavian languages can have three-gender systems (Icelandic, Faroese, most Norwegian dialects, and some Swedish dialects) or two-gender systems (Standard Swedish, Standard Danish, and some Norwegian dialects). While nearly all Scandinavian languages have formal assignment systems with a semantic core based on biological sex, the Danish dialect of West Jutland has evolved a semantic system by which materials and masses are neuter, and all other nouns are common gender (see Braunmüller 2000:28–29; Josefsson 2013:73–94, 2014:71–74). Even between language varieties with very similar gender systems, there can be a good deal of variation in the gender assignment of individual nouns. This is explored in Study 3, which compares gender assignment in six different Scandinavian varieties.

2.2.1 Gender in Old Norse and Old Swedish

Old Norse is the term used in mainstream research to refer to all Old Nordic languages; however, it more accurately refers to Old West Norse and in particular the variety spoken on Iceland, since this is where the majority of the written records of the time come from. In terms of the gender system, the differences between Old West Norse and Old East Norse during this time period are minimal. The Old Nordic languages have a nominal system with three genders (masculine, feminine, and neuter) and four cases (nominative, genitive, dative, and accusative). In addition, Old Norse and Old Swedish have several inflectional classes, encompassing both strong and weak inflections.[5]

[5] Old Swedish has a nearly identical nominal paradigm to Old Norse, with the exception of the insertion of a svarabhakti vowel before the strong masculine nominative *-r* ending, giving *-er*. Additionally, the weak neuter nominative/accusative ending *-u* becomes *-un* in Old Swedish.). For a more in-depth description of Old Swedish inflection, see Delsing (2005); Wessén (1955 [1969], 94–106).

Nouns

Nouns in Old Norse and Old Swedish are inflected for case, number, and definiteness. Nouns are traditionally divided into strong and weak declensions (on formal grounds), and further into inflectional classes. Inflectional classes can be classified according to their ending in the accusative plural. Strong masculines are divided into a-class, i-class, u-class, and r-class, while strong feminines are divided into ar-class, ir-class, and r-class. Strong neuters have only one inflectional class, which has a null ending in the nominative and accusative plural. Weak masculines can be divided into two classes, the a-class and the r-class. There are two classes of weak feminine nouns, the ur-class and the i-class, and one group of weak neuter nouns, the u-class (Haugen 2015:57–74). For further discussion see Haugen (2015:56–76) and Kristoffersen (2005:911–915).

Adjectives

Adjectives are marked for gender, number and case, in accordance with the noun they modify. Some adjectives, like nouns, can have strong and weak inflections; see Iversen (1946, 70–77), Faarlund (1994:50–51), Kristoffersen (2005:916), and Haugen (2015:82–93). For adjectives with both strong and weak inflections, the strong inflection is employed when an adjective is used without a determiner, while the weak inflection is used for adjectives with determiners (Haugen 2015).

Pronouns

Old Norse and Old Swedish personal and possessive pronouns have three genders, four cases, and two numbers, similarly to nouns. In addition, case and gender can be seen in the inflection of quantifiers and demonstratives, which also agree with the nouns they denote, anaphorically or cataphorically. For details on pronoun, quantifier and demonstrative paradigms, see Iversen (1946:86–97), Kristoffersen (2005:919–920), and Haugen (2015:94–98).

2.2.2 Gender in Standard Swedish

In the modern Mainland Scandinavian languages, the nominal system has been simplified from Old Norse/Old Swedish times. The case system has been lost, and in Standard Swedish, Danish, and some dialects of Norwegian, the number of genders has been reduced from three to two. Most scholars see the loss of gender as being closely connected to the loss of case: as the case distinctions are leveled, there are fewer points at which the masculine and feminine genders can be differentiated, leading to a conflation of these two genders (Haugen 1982:110). In Swedish, this process occurred gradually from the early 16th century to the beginning of the 19th century (Enger 2005, Davidson 1990).

After the loss of the three-gender distinction within the noun phrase, the pronominal system shifted to align with the new two-gender system. No longer backed by a rich inflectional system, the masculine/feminine distinction in inanimate nouns eroded, and the pronominal system was restructured along semantic lines. *Han* 'he' and *hon* 'she' were still used as personal pronouns for referents with a specific biological sex, while the demonstrative *den* was recruited for non-human common gender referents. The neuter pronoun *det* was preserved for neuter referents. This left Swedish with a four-way distinction in the pronominal system, split along the lines of both grammatical gender and animacy. This contrasts with the previous three-way distinction that was based on grammatical gender (Andersson 1979:42, Davidson 1990:152).

Today, Swedish makes a distinction between 'common' gender (also known as 'uter' or 'non-neuter') and neuter gender. Gender agreement surfaces on articles, pronouns, and adjectives. Table 1 illustrates grammatical gender in present-day Standard Swedish.

Table 1
Gender agreement and anaphoric pronouns in Standard Swedish in the singular (from Van Epps & Carling 2017)

	Common/uter	**Neuter**
Indefinite article	*en stor bil* a big car	*ett stort hus* a big house
Definite article	*bilen är stor* the car is big	*huset är stort* the house is big
Possessive pronoun	*det är din hatt* it is your hat	*det är ditt paraply* it is your umbrella
Anaphoric pronoun	*Uppsatsen är inte lång men den är mycket tråkig.* The essay is not long but it is very boring.	*Huset är inte gammalt men det är slitet.* The house is not old but it is worn out.

This Standard Swedish system, which originated in the political and linguistic center of Stockholm, exerts a considerable influence on rural dialects. At present day, most dialects of Swedish also distinguish only two genders. The three-gender system remains in Jämtland, Älvdalen (see Nyström & Sapir 2018), parts of Norrland (i.e., Västerbotten, see Thelander 1975), and some regions of Swedish-speaking Finland (Ostrobothnia, see Rabb (2007); and Eastern Nyland, see Sandström (2010)).

2.3 Jämtland and Jamtlandic

The province of Jämtland is located in the southernmost part of the Norrland region, in the geographical center of Sweden. Its interesting political history has contributed to the unique character of the language spoken in the region.

2.3.1 The province of Jämtland

This thesis focuses on the traditional language spoken in Jämtland. It refers primarily to Jämtland as a province (*landskap*) rather than the administrative unit *Jämtlands län*, which contains the provinces of Jämtland and Härjedalen. Jämtland's unique position at the border between Norway and Sweden has made for a turbulent history, with the province changing hands several times. In 1111, Jämtland came under Norwegian rule, where it remained until 1645. Nevertheless, for most of this period Jämtland remained under the bishopric of Uppsala, putting it in the unusual position of being politically Norwegian, but Swedish where church matters were concerned. Jämtland continued to be considered a part of Norway under the Kalmar Union, and then as a part of Denmark/Norway after the breakup of the union in 1523. A series of wars from 1563 to 1645 led to great unrest in Jämtland. The first of these wars, the Seven Years' War (1563–1570) ended in Jämtland's moving from the Swedish bishopric in Uppsala to the Norwegian bishopric in Trondheim. Later, *Baltzarfejden*, a conflict that was a part of the Kalmar War, caused great destruction in Jämtland and the neighboring province of Härjedalen from 1611 to 1613. The last of this series of conflicts, *Hannibalsfejden* (1643–1645), ended in the Peace of Brömsebro, which led to Jämtland and Härjedalen becoming Swedish in 1645 (Ahnlund 1948, Bromé 1945, Kardell 1924).

In modern times, Jämtland has been a relatively isolated province; it is a typical example of a *glesbygd* ('sparsely populated') region in Sweden. Its economy has traditionally been based on agriculture and forestry (Van Epps & Carling 2017). With the mechanization of the forestry industry and the decline of agriculture, Jämtland's economy has suffered in recent years. Young people who are born in Jämtland tend to leave the region for university studies and better employment opportunities, which leads to an aging population – 23.1% of the population of Jämtland is aged 65 and over, as opposed to 19.1% of the overall population of Sweden (SCB 2015). The aging of the population and the tendency for young people to leave Jämtland (either temporarily or permanently) is an important factor in the decline of the use of Jamtlandic among young people.

2.3.2 The Jamtlandic language

Jamtlandic (or *jamska*) is spoken in most of the province of Jämtland, excluding the northernmost region of Frostviken, where *lidmål* is spoken (Österberg 1914). Although *jamska* is often used to refer collectively to all of the dialects spoken in Jämtland, there is considerable linguistic diversity within the region. The Jamtlandic dialects can be divided into the following groups: *västjämtskan*, spoken in Undersåker, Åre, and Kall; *centraljämtskan*, spoken in the area around Storsjön; *sydjämtskan*, spoken in Oviken, Myssjö, Berg, Rätan, Åsarne, Klövsjö, Hackås, and Gillhov; and *nordjämtskan,* spoken in and north of Hammerdal (Pamp 1978). Jamtlandic shows influence from both Swedish and Norwegian, and there has been some debate as to its genealogical relationship. While some sources (i.e. Pamp 1978:127, Wessén 1945:39) count it as a dialect of Swedish, others (Haugen 1982:9, Österberg 1914:5, Noreen 1903:112) see it as more closely related to Norwegian, or directly descending from Old Norse. The location of the Jamtlandic-speaking region on the border of Sweden and Norway, along with the turbulent political history of Jämtland, has made the language subject to heavy influence from both Norwegian and Swedish. This makes the genealogical relationship even more difficult to pinpoint. As of now, there has been no in-depth research on the subject of Jamtlandic's genealogical affiliation, so any assertions regarding the precise position of Jamtlandic within the Scandinavian family tree remain unconvincing. In any case, Jamtlandic exhibits some important differences from Standard Swedish, which are outlined below.

Phonologically, Jamtlandic differs in some significant ways from Swedish. One salient difference is the maintenance of the diphthongs that were present in Old Nordic (all Jamtlandic dialects maintain the diphthong /au/, all except for *offerdalsmålet* also have /ei/, and *sydjämtskan* additionally maintains /öu/). Similarly to neighboring Norwegian dialects, Jamtlandic has /u/ in words like *ku* 'cow' and *bru* 'bridge' (compare Sw *ko, bro*).[6] The 'thick l' sound ([ɽ], as in *tvål* 'soap', *klippe* 'cliff'), as well as the unvoiced /l/ occurring before /t/ (as in *allht* 'everything', *salht* 'salt') are also characteristic for Jamtlandic. Another feature is the lenition of stops in certain environments: for example, /k/ becomes /tʃ/ before /e/ (as in *mytʃe* 'much'; compare Sw *mycket*); /g/ also becomes /j/ before /e/ (as in *skojen* 'woods'; compare Sw *skogen*). In addition, /p/ becomes /f/ before consonants (e.g., *juft* 'deep'; compare Sw *djupt*; and *kööft* 'bought'; compare Sw *köpte*). An /s/ is inserted into consonant clusters after /r/: *skarsp* 'sharp' compare Sw *skarp*; also *bjårska* 'the birch tree'; compare Sw *björken* (Oscarsson & Nygren 1973:59).

Morphologically, Jamtlandic shows some marked differences from Swedish. Besides the maintenance of the three-gender system, some Jamtlandic dialects also maintain the dative case. Traditionally, the genitive *-s* is not used in Jamtlandic, as it

[6] The examples here are mainly from *centraljamskan* (Oscarsson & Nygren 1973) and *nordjämtskan* (Reinhammar 2005). Other Jamtlandic dialects may differ slightly.

is in Swedish. Instead, possession is expressed through prepositions, as in the expression *skoan åt keringen* 'the old woman's shoes.' Jamtlandic often uses adjective/noun compounds in definite expressions, where Swedish uses separate words along with the definite demonstrative *den* (e.g., Jamtlandic *gammelhuse* versus Swedish *det gamla huset* 'the old house.') For indefinite adjectival expressions, the double definite article is used, coming both before and after the adjective (e.g., *n stor n pojk* 'a big boy'). Another interesting feature of nominal morphology is the usage of the preproprial article. This article comes before proper names (e.g., *Je rååkt n Karl å a Kare* 'I met Karl and Karin' (Reinhammar 2005)).

Verbal morphology can vary significantly in different Jamtlandic dialects. For example, in most dialects, the infinitive and present tense of weak verbs are indicated by a long vowel, rather than the *-a* infinitive and *-ar* present tense ending as in Swedish (e.g., JL *staan*, Sw *stannar* 'stands'). The present participle takes a different form than in Swedish: the ending is *-nes*, as opposed to *-ende/-ande* (e.g., JL *gåenes*, Sw *gående* 'walking' (Oscarsson & Nygren 1973:62–63). In addition, Jamtlandic has a variety of prepositions that have no cognate in Standard Swedish; some of these are *pöni* 'under', *bredma* 'next to', *omma* 'above' (Reinhammar 2005). Aside from these phonological and morphological differences, Jamtlandic has some vocabulary differences that distinguish it from Swedish; many of these vocabulary items have cognates in Norwegian and/or Norrland dialects (some famous examples are *kongro* 'spider', *stårse* 'girl', *kruse* 'cookie/biscuit').

2.3.3 Gender in Jamtlandic

Jamtlandic distinguishes masculine, feminine, and neuter genders. Additionally, some speakers still use dative case, which is distinguished from the nominative/accusative only in the definite forms. Gender agreement surfaces on definite and indefinite articles, possessive pronouns, anaphoric pronouns, and adjectives. In adjectival agreement there is only a two-way distinction: masculine and feminine nouns are marked identically (Reinhammar 2005). Table 2 presents the nominative paradigm for Jamtlandic in the singular.

Table 2
The nominal paradigm and anaphoric pronouns in Jamtlandic (from Van Epps & Carling 2017)

	Nominative/Accusative			**Dative**		
	Masculine	*Feminine*	*Neuter*	*Masculine*	*Feminine*	*Neuter*
Indefinite article	***n*** *segelbåt* s sailboat	***ei*** *hann* a hand	***e*** *hus* a house	***n*** *segelbåt* a sailboat	***ei*** *hann* a hand	***e*** *hus* a house
Definite article	*båt-**n*** the boat	*hann-**a*** the hand	*hus-**e*** the house	*bäck-**a*** the stream	*jord-**n*** the earth	*vattn-**an*** the water
Possessive pronoun	*båtn* ***menn*** my boat	*kärringa* ***mi*** my old woman	*huse* ***mett*** my house	*båtn* ***menn*** my boat	*kärringa* ***mi*** my old woman	*huse* ***mett*** my house
Anaphoric pronoun	***han*** *or* ***n*** it (m)	***hon*** *or* ***na*** it (f)	***det*** it (n)	***han*** *or* ***n*** it (m)	***hon*** *or* ***na*** it (f)	***det*** it (n)

This three-gender system is robust among elderly speakers. However, many younger speakers use a two-gender system instead of the traditional three-gender system. Study 1 investigates the maintenance of this gender system and how it is influenced by various linguistic and social factors.

2.4 Sociolinguistic studies of other Swedish dialects

Gender in Swedish dialects has been a topic of considerable interest in recent years. Many studies have taken a sociolinguistic approach, looking at how social factors influence the maintenance of the gender system. In general, these studies have found that three-gender systems are breaking down, most often with the masculine gender (which is formally similar to the Swedish common gender) taking over at the expense of the feminine gender. Even studies conducted as long ago as Thelander's (1975) exploration of gender in Burträsk, Västerbotten, show this weakening of feminine gender. Sandström (2010), in her dissertation on gender in Eastern Nyland, found that the traditional gender system had ceased to be used productively, although some salient features of the three-gender system remained and were used as identity markers to index belonging to the local community. Rabb (2007) found that when asked to identify the correct agreement for a noun, dialect speakers in Kvevlax, Ostrobothnia were more likely to choose non-traditional agreement for historically feminine nouns than for historically masculine nouns.

Various social factors have been shown to be significant in influencing the traditionalness of grammatical gender usage. Unsurprisingly, one of the most significant factors is speaker age. In general, the oldest speakers use the most traditional gender systems (as seen in Thelander 1975 and Rabb 2007). Sandström (2010) used data from two different time periods (1960–1970 and 2005–2008), finding that while the gender systems in the older material showed some signs of

degradation, a productive three-gender system had all but disappeared in the later material. In addition, education and mobility can play a role: Rabb (2007) found that older informants with a low education level and low mobility were the most likely to maintain traditional gender agreement. Study 1 investigates whether or not some of these factors play a role in the maintenance of the gender system of Jamtlandic.

In general, the observations of these studies fit well with the trends observed in Sweden over the past century; namely, the disappearance of traditional dialects over time as a consequence of language standardization, obligatory Swedish-language schooling, increased mobility, and stigmatization of rural dialects. Most Swedish dialects have long since been leveled into regional standards (see Auer, Hinskens & Kerswill 2005); these are structurally similar to Standard Swedish. Only in more isolated areas such as Jämtland does the three-gender system survive.

3 Methods

In this section, I discuss the methods used for the various studies in the thesis. The primary methods include fieldwork, use of reference materials including dictionaries, cognacy analysis, and statistical analysis.

3.1 Field methods

All three of the studies in this thesis rely on fieldwork in order to obtain the data for Jamtlandic. Study 1 looks at sociolinguistic variation, and as such it was necessary to conduct experiments with a wide range of speakers of Jamtlandic. For Studies 2 and 3, fieldwork was required to obtain lexemes for the Jamtlandic word list because there is not a reliable dictionary of Jamtlandic that includes the gender of each noun. Fieldwork for Study 1 was conducted in four locations in Jämtland (Oviken, Järpen, Aspås, and Hammerdal), and fieldwork for Studies 2 and 3 was conducted in Oviken. In this section I discuss the field methods that were used, including the advantages and limitations of each method.

3.1.1 Director-matcher task

In a director-matcher task, non-linguistic stimuli is used to elicit specific vocabulary items or areas of grammar as participants work together to solve a task. In a traditional director-matcher task, participants are screened off from each other and each is given a set of stimuli. One participant (the director) is instructed to describe a specific stimulus to the other participant (the matcher) so that he or she can choose the correct stimulus. A variation on this method was chosen for Study 1 because it allows the participants to speak freely, and also limits the involvement of the experimenter (Thieberger 2011:68). The experiment we used for this study involved one participant (Participant A) viewing a slideshow presentation on a computer that the other participant (Participant B) could not see. Participant B was provided with a stack of pictures corresponding to the pictures that Participant A saw on the screen. During the task, Participant A had to describe the objects that appeared on the screen, as well as the positioning of objects in relation to each other (when two pictures appeared together). Participant B's task was to choose the correct picture(s) as

described by Participant A, and place them in a position that matched what Participant A saw on the screen. Since the objects and positioning varied from slide to slide, Participant B had to move the pictures around until Participant A judged that they were placed correctly. The experiment was designed to elicit indefinite articles the first time a picture was introduced, then definite articles when pictures were repeated, and finally anaphoric pronouns as the positioning varied and the participants had to refer to the objects repeatedly. All of the experiments were recorded and later transcribed using Praat.

This method was chosen because it allowed us to target gender agreement for specific nouns, while still keeping the conversation fairly natural and limiting the involvement of the experimenter. A disadvantage to this method is that we could not guarantee that all agreement types would be elicited across participants. More uniform results could have been obtained through direct elicitation (asking each participant directly what type of agreement they would give to a noun), but this would not accurately reflect the gender agreement used in natural speech, which we considered essential to our study. On the other hand, this method cannot really be considered the same as natural speech, since the setting was clearly experimental. The Observer's Paradox, a concept central to sociolinguistic research, states that the act of observation causes people to change the way they speak. While it is not possible to completely eliminate the effects of the Observer's Paradox in an ethical way, researchers should strive to minimize its effect (Labov 1972). The closest way to obtain natural speech is to record free conversations. This however was not suited to our study, since the analysis required that we elicit agreement for the same nouns, in order to be able to compare across participants. The approach we chose thus represents a compromise between a controlled experimental setting and a natural conversational setting.

3.1.2 Direct elicitation

For Study 2, we conducted a large-scale analysis of gender assignment in Jamtlandic. Study 3 used this same Jamtlandic data and compared it to gender assignment in other Scandinavian three-gender varieties. For these purposes, it was necessary to obtain the gender of a large number of Jamtlandic nouns. We began with a list of 800 meanings, taken from Haspelmath & Tadmor's (2009) World Loanword Database (WOLD), which is originally based on Buck (1949). To obtain Jamtlandic lexical items and gender for such a large number of meanings, it was necessary to use direct elicitation. For each meaning in our list, we provided informants with the Swedish word and asked how they would say it in Jamtlandic. We then asked for the indefinite article that the informants would use with the noun (often, speakers gave the definite article and anaphoric pronoun as well during the discussions). In this way, we determined the gender of the noun.

The disadvantage to this method is that the lexical items and genders were not obtained in a natural setting. It would have been preferable to use pictures to elicit the lexical items, but this was not possible for such an extensive word list (especially since it included abstract meanings). In order to minimize the effect of the interviewer's presence and to make the setting more natural, the data was obtained with groups of participants, rather than with individual language consultants. This allowed participants to discuss amongst themselves, and it encouraged discussion about the lexical items. It also allowed us to control for individual variation – we were able to make note of instances in which speakers disagreed about the gender of the noun. In particular, it encouraged participants to speak Jamtlandic, which helped us ensure that we were obtaining traditional dialect forms (or at least, what the speakers believed were traditional dialect forms). This helped us mitigate the effects of having a non-Jamtlandic-speaking experimenter present. In some instances, some of the participants gave a Standard Swedish lexical item or agreement form, and they were 'corrected' by the other participants.

3.1.3 Sociolinguistic interviews and questionnaires

Since Study 1 is a sociolinguistic study, we needed to obtain information about the participants' backgrounds, as well as about social conditions in Jämtland. For this purpose, we gave a sociolinguistic questionnaire to each participant to fill out after the experiment. We also conducted in-depth interviews with 15 participants regarding language and social attitudes.

The sociolinguistic questionnaire is commonly used to gather sociological data on participant backgrounds in sociolinguistic studies (Sakel & Everett 2012). This accompanies collection of language data, and focuses on factors that might influence the language usage of the participants. For Study 1, we asked questions regarding participants' birth year, education level, occupation, where they grew up, and where their parents were from. The questionnaire reflected factors that have been shown to influence gender usage in past studies of gender in Swedish dialects (Thelander 1975, Rabb 2007, Sandström 2010). In addition, we included questions about each participant's attitude towards Jamtlandic in order to ascertain whether or not language attitudes can influence the maintenance of the gender system. Data about language attitudes can be difficult to interpret, since it does not always directly correlate with linguistic behavior. However, it has been shown to play a role in whether or not non-standard varieties are transferred to new generations, as well as to influence the structure of non-standard varieties in the long term (Auer, Hinskens & Kerswill 2005:38–39).

The in-depth interviews were designed to help us gain an understanding of what kinds of social factors are present in the region, allowing us to better interpret the variation along socio-economic lines. The interviews included questions about

language attitudes and identity, in order to help us determine the status of Jamtlandic and Standard Swedish amongst our speakers. In addition, we asked about the status of various career types, in order to help us interpret language variation based on occupation and socioeconomic status. The results of these interviews were taken into account in the interpretation of the experimental results for Study 1. For instance, participants denied that white-collar professions had an elevated status in the community; this is reflected in the result that participants in the highest economic group did not exhibit the most Standard Swedish-like gender agreement.

3.2 Dictionaries and written materials

Various reference materials were used in the studies, including dictionaries of Scandinavian language varieties and etymological dictionaries. In some cases they were consulted as supplementary material to aid in the choice of words to include, as in Study 1, where we checked the historical gender of candidate words in *Svenska akademiens ordbok (SAOB)* (Svenska akademien 1997), as well as the traditional Jamtlandic gender in *Orlboka* (Oscarsson 2007). Dictionaries played a more central role in Study 3, where they were consulted to obtain lexical items and gender in Old Norse (Heggstad 2008, Zoëga 1910), Old Swedish (Schlyter 1877, Söderwall 1884), Norwegian (Hovdenak et al. 2006),[7] and Elfdalian (Steensland 2010).[8] In addition, we consulted etymological dictionaries (Hellquist 1939, Kluge 2002) in order to determine the loan status of cognates, and in order to find any missing cognates.

A potential problem with using dictionaries as sources for gender information is that dictionaries do not necessarily reflect variation in gender assignment. Although variation was captured fairly consistently for Norwegian, the same cannot be said for Old Norse and Old Swedish, where information on gender is based on limited written sources. Information on gender variation would have been useful in analyzing the development of lexical items that have variable genders across languages, but this is unfortunately a limitation of working with extinct languages that cannot be avoided.

[7] We also consulted a native speaker of Norwegian for assistance with the Norwegian lexical items.

[8] We also relied on fieldwork for some of the Elfdalian lexical items, if they could not be found in the dictionary.

3.3 Cognacy analysis

A *cognate* can be defined as a grammatical or lexical morpheme which shares similarities in its phonemic structure with a morpheme in another language, and which depends on shared ancestry (Carling et al. 2019). Analysis of cognates is a central part of the subdiscipline of historical linguistics. Chang et al. (2015) make a distinction between *cognate traits* and *root meaning traits. Cognate traits* describe lexemes in different languages that are descended from the same ancestral word form, including all affixes that may belong to the lexemes. An example of this is German *Gast* 'guest' and Latin *hostis* 'stranger, enemy', which are both descended from the Proto-Indo-European form **g^{h}osti-*. Most historical and comparative studies focus on cognate traits. In contrast, most phylogenetic studies focus rather on *root meaning traits*, in which lexemes in a set share the same root, but not necessarily the same affixes. One example of words that share root meaning is English *feather*, derived from Proto-Indo-European **pet-trā*, and Latin *penna* 'feather', derived from Proto-Indo-European **pet-nā.* These share the root **pet-*, but have different suffixes.

Study 3 focuses on comparing the gender of cognates across six language varieties. Our sets are generally organized according to *concepts*, or lexical meaning (see List et al. 2016), in order to investigate the role of semantics in gender assignment. Lexemes can add or lose meanings over time in related language varieties; this is known broadly as *semantic change* (see Urban 2014). In Study 3 we kept a note of all the instances of semantic change we saw in the material, since we included cognate lexical items that had undergone semantic change in the same set. We focus on cognate traits rather than root meaning traits, as sets include lexemes that have undergone a meaning shift. However, we occasionally include words that share a root but are not identical in form. In some cases, languages have the same root but different derivational suffixes, or languages share the head of a compound, but have a different non-head (as in DRIVER'S LICENSE (No *førarkort* n, Nsv *körkort* n, JL *körkort* n, Elf *tjörkuort* n). Including partial cognates where all languages share a head, but not necessarily the entire compound, allows us to form more complete cognate sets. Because the gender of lexical items in Scandinavian comes from the head of a compound (Källström 1996:154), we are able to look at these different forms as being basically equivalent from a gender-assignment standpoint. In contrast, gender in Scandinavian often comes from suffixes, so we expected that lexemes with the same root but different derivational suffixes would have different genders (see Källström 1996:159; Trosterud 2001:43–44, 2006:1451–1460). We included sets in which all languages share a root, but some languages have different derivational suffixes, in order to evaluate the effect that the derivational suffix has on the gender of the noun in each language. An example of this can be seen in the set STUPIDITY (No *dumskap* m, Nsv *dumhet* f, JL *dumheit* f, Elf *dummiet* f); in which the *-het/-heit/-iet* suffix gives

feminine gender to the lexemes in Nysvenska, Jamtlandic, and Elfdalian; and the *-skap* suffix gives masculine gender to the Norwegian lexeme.

3.4 Statistical methods

The use of statistical methods in linguistics has been increasing in recent years. Quantitative analyses provide a reliable measure as to whether the patterns we see are significant or not. This constitutes a definite advantage over previous approaches, which often relied on the linguist's intuition to determine which results were considered 'significant.' Statistical analysis is used throughout the thesis in order to determine whether or not the differences in gender assignment in our material are significant. All statistical tests and analyses for this thesis were conducted with the program R. The statistical methods we used varied in the different studies and are detailed below.

3.4.1 Chi-square test

The chi-square test is used to detect the presence of non-proportionalities in contingency tables, and is a common test for determining the significance of relationships between categorical variables. The test produces a p-value, which is used to determine whether or not the difference between values is significant. In statistical tests, significance is usually set to p=.05, which indicates that 5% of the population has values that are even more extreme than those observed (Baayen 2008).

We use the chi-square test in Study 1 to determine whether or not the differences we see between various groups are significant. For this, we set up a contingency table for each of the predictor variables (historical gender of the noun, agreement type, participant age, participant gender, education, location, socioeconomic status, and language attitudes) against the dependent variable 'traditionalness' (whether or not the gender the participant used is in alignment with the traditional gender). We set the significance level to p=.05 as per the usual practice for this type of analysis.

3.4.2 Logistic regression

Logistic regression assesses the effects of various predictor variables on a dependent variable. It is useful in situations in which a linear relationship does not hold; this is often the case for linguistic data. Binomial logistic regression is used when the dependent variable is categorical and has two possible values; the predictor variables can be either numerical or categorical (Speelman 2014). The advantage of this method is that it takes into account dependencies between different predictor

variables, which is not possible when the predictors are compared individually. For Study 3, we use binomial logistic regression to determine how various factors (Old Norse declension class, Old Norse gender, loan status, frequency, abstract/concrete, count/mass, and animate/inanimate) influence the likelihood of a word to have variable gender.

In Study 2, we use multinomial logistic regression to determine if the assignment rules we proposed are significant in predicting the gender of a noun in Jamtlandic. Multinomial logistic regression is similar to binomial logistic regression, but is used in cases where the dependent variable has more than two values. Since our dependent variable has three values (*masculine, feminine,* and *neuter*), this was the appropriate approach for this study. This regression analysis looks at how the gender of a noun is influenced by the presence of certain semantic, phonological, and morphological features (nouns referring to humans not specified for sex, mass/count, animals, time, disyllabic *-a* and *-e*, and plural patterns).

4 The investigations

4.1 Study 1 – The sociolinguistics of gender shift in Jamtlandic

Study 1 looks at gender assignment in Jamtlandic from a sociolinguistic perspective, investigating how various linguistic and extralinguistic factors influence the traditionalness of the gender agreement used by the participants. Previous studies of gender assignment in dialects of Swedish have indicated that traditional three-gender systems are declining under the influence of Standard Swedish (Thelander 1975, Rabb 2007, Sandström 2010). These past studies have shown that the traditionalness of gender systems is subject to sociolinguistic variation. In particular, gender systems are influenced by speaker age and education, with older, less educated speakers using a more traditional gender system (Thelander 1975, Rabb 2007). Sandström (2010) found that speakers in Eastern Nyland had ceased to use the three-gender system productively, and instead were using remnants of the former gender markers to index belonging to the local community.

In Study 1, we aimed to conduct a sociolinguistic investigation of gender in Jamtlandic, a three-gender variety which had not previously been studied. The gender system could then be compared to that of other Swedish three-gender dialects. We were interested both in the overall state of the three-gender system (how well it has been preserved), as well as how various sociolinguistic factors influence speakers' use of gender. In addition, we look at the language-internal drivers of change: whether anaphoric pronouns or agreement within the noun phrase is leading the change to two genders.

To answer these questions, we took an experimental approach, conducting fieldwork in four different communities in Jämtland (Oviken, Järpen, Aspås, and Hammerdal). The experimental approach is an innovation for sociolinguistic studies on grammatical gender in Scandinavian. Experiments were conducted with 50 participants, using a director-matcher task (see Section 3.1.1). The experiment was designed to elicit definite articles, indefinite articles, and anaphoric pronouns for a specific set of nouns (represented by pictures in the director-matcher task). For this study, we focus on traditionally masculine and feminine nouns, since these are the genders that are impacted in the shift to two genders in the Germanic languages (while masculine and feminine merge, the neuter gender remains the same). Each

experiment was transcribed and gender agreement was coded into an Excel sheet, which also included participants' responses to a sociolinguistic questionnaire (this included information on speaker age, speaker gender, education level, socioeconomic index, birthplace, and current place of residence), as well as the language-internal variables we wished to investigate (traditional gender of the noun and agreement type). We used R to perform a chi-square test on each predictor variable, which helped us determine which of the variables are significant in predicting 'traditionalness' of gender agreement. 'Traditionalness' is our dependent variable and is defined as whether or not the gender used by the participant is aligned with the traditional gender in the dialect. Traditional gender was determined by consulting both *Svenska akademiens ordbok* (Svenska akademien 1997) and Oscarsson's (2007) dictionary of Jamtlandic.

Our results indicate that Jamtlandic still maintains a fully functioning three-gender system. It has not degraded into a marker of social identity, as is the case in Eastern Nyland (Sandström 2010). In fact, the results show that gender agreement is more traditional in Jämtland than in the three other studies we used as a comparison – overall, 90.6% of the agreement tokens in our material are aligned with the traditional gender. Our Jamtlandic participants, surprisingly, have a gender system that is even more conservative than that of Thelander's (1975) informants in Burträsk. Nevertheless, it is important to note that most of our speakers are elderly – the median birth year is 1950. This is because of the difficulty of finding young speakers of Jamtlandic. For the 4 younger participants in our study (born 1997–1999), non-traditional agreement was relatively high (41.8%), which constituted a significant difference from the material at large (χ^2 (2) = 319.5, p<.01). This leads us to conclude that young speakers of Jamtlandic use a gender system that is different enough to constitute a different population from the older speakers in our study.

In terms of language-internal factors, there is a significant difference between non-traditional agreement for historically masculine and feminine nouns, with feminine nouns being more likely to take a non-traditional gender (χ^2 (1) = 26.41, p<.01). In addition, definite article agreement is more traditional than indefinite article agreement and anaphoric pronouns (χ^2 (2) = 62.01, p<.01).[9] This result has interesting parallels in other language varieties – Enger (2018) proposes that when the definite article is suffixed (as is the case for Jamtlandic), it behaves more conservatively than word-external gender marking. He shows that this is true for Oslo Norwegian and Istria Romanian, which have maintained the suffixed feminine definite article after all other feminine gender agreement has been lost. An interesting parallel comes from American speakers of Heritage Norwegian and Heritage Swedish

[9] Gender agreement in Jamtlandic also surfaces on possessive pronouns, but Study 1 does not focus on these in order to constrain the number of variables, and because including these would probably have required a different elicitation technique. Limiting the analysis to indefinite articles, definite articles, and anaphoric pronouns allowed us to keep the experiment to an acceptable length for our participants, and also to conduct a more effective statistical analysis.

– these speakers make numerous gender agreement mistakes with indefinite articles, pronouns, and adjectives, but not with the suffixed definite article (Johannessen & Larsson 2015).

Besides the significant difference based on age, we find a significant difference for speaker gender (χ^2 (1) = 34.24, p<.01), whereby females are more likely to use non-traditional agreement than their male counterparts. This is in line with what we would expect from other sociolinguistic studies (Labov 2001, Tagliamonte 2012, inter alia). In addition, speaker education level was significant – participants with a university education or vocational training are more likely to use non-traditional forms than participants with a primary school education (χ^2 (4) = 24.31, p<.01). We found a significant difference according to socioeconomic index, with professionals (the highest group on the socioeconomic index) surprisingly using the most traditional agreement, and the social groups in the middle of the scale (skilled manual workers and assistant non-manual employees) using the least traditional agreement (χ^2 (5) = 80.27, p<.01). We hypothesize that this is the case because social groups towards the middle of the socioeconomic scale would benefit the most from using prestige language forms.

We also find differences among the four varieties of Jamtlandic, with speakers in Järpen displaying a less traditional gender system than speakers in Hammerdal, Aspås, and Oviken (χ^2 (3) = 17.96, p < 0.01). Finally, we find that language attitudes have a significant effect on the traditionalness of the gender system (χ^2 (1) = 112.48, p<.01). Participants who indicate that the preservation of Jamtlandic is very important to them use more traditional agreement than speakers who indicate that preservation of Jamtlandic is only somewhat important. This is in line with our hypothesis that language attitudes play a role in the maintenance of traditional language varieties in Sweden. Speakers who consider Jamtlandic to be an important part of their lives are more likely to use it when speaking with other members of the community, to advocate for its preservation, and to pass it on to the younger generation.

This study shows that the three-gender system in Jamtlandic is still robust among its speakers (though most speakers are elderly). Nevertheless, because of the significant increase in non-traditional agreement among young speakers, Study 1 corroborates earlier studies on conservative Swedish dialects which that show that three-gender systems tend to erode over time. Further research with younger speakers would be necessary in order to elucidate the mechanisms of this change. In addition, our study shows that a changing gender system is sensitive to sociolinguistic factors such as speaker age, education, socioeconomic status, and language attitudes.

4.2 Study 2 – Patterns of gender assignment in Jamtlandic

Study 1 looks at variation in gender usage from a sociolinguistic perspective, and is less concerned with the mechanisms of gender assignment in itself. In Study 2, we take a closer look at how gender is assigned to nouns, proposing some gender assignment principles for Jamtlandic. These principles are evaluated as to how well they fare in conflict with other principles, how well they cover our material, and their effects on gender assignment according to a multinomial logistic regression analysis. Finally, we look at gender assignment in modern loanwords in order to see if there has been any change in the gender distribution as compared to the material at large.

For Study 2, we compiled a list of 1,029 Jamtlandic nouns and their gender. This list was based on a concept list from Haspelmath & Tadmor (2009) and was designed to cover a wide range of meanings. We added additional modern words and words with specific derivational suffixes, so that we could investigate these types of nouns. Data was collected through fieldwork in Oviken, Jämtland with 21 different participants, who worked in groups to provide Jamtlandic translations and gender agreement for each lexical item (see Section 3.1.2). The lexical items from the fieldwork sessions were compiled into an Excel spreadsheet along with their gender and plural forms (collected separately with one language consultant). We also coded the assignment principles we intended to investigate. We look closely at semantic factors (biological sex, human/nonhuman, mass/count, words denoting animals, words denoting time concepts), morphological factors (plural inflection, derivational suffixes), and phonological factors (disyllabic nouns ending in an unstressed vowel, i.e., *stugu* 'hut', *råtte* 'rat'; monosyllabic nouns ending in a vowel, i.e. *tåu* 'toe', *ve* 'wood, firewood'; and onset and coda sequences). These factors were chosen based on principles that have been shown to influence gender assignment in other varieties of Scandinavian (Trosterud 2006, 2001; Källström 1996; Steinmetz 1985). We initially calculated the percentage of words in each category that received the expected gender, in order to get a general idea of the reliability of each assignment principle. Next, we look at some tendencies that occur together and reinforce each other, and we look at what happens when assignment principles are in conflict with each other. We calculate the percentage of 'wins' and 'losses' for each assignment principle, and use this as well as the percentage coverage to rank the principles in terms of how strong they are. According to these measures, the strongest predictors of grammatical gender are biological sex (words for males are masculine, and words for females are feminine), the suffix *-ar* (which indicates masculine gender), and plural patterns.

In order to test the statistical validity of these generalizations, we perform a statistical analysis using multinomial logistic regression. This statistical analysis helps us to determine which factors are statistically significant in determining the gender of a noun, and which are not. This leads us to adjust some of our claims about which assignment tendencies are the strongest. Words referring to humans (not specified for sex) are significantly more likely to be masculine (p<.001), which is in line with our expectations. In addition, words for animals are significantly less likely to be neuter (p=.006). The generalizations for mass/count nouns and time concepts do not produce a significant effect on gender assignment. In terms of phonology, disyllabic words ending in *-e* are significantly more likely to be feminine (p<.001), while disyllabic *-a* does not have an effect. Finally, plural pattern is a significant predictor (p<.001). Some of the predictors (disyllabic *-u*, the agentive *-ar* suffix, and the semantic core (biological sex) are likely to be very strong predictors of gender, according to how well they predict the gender of relevant nouns and how they fare in conflicts with other assignment principles. However, these predictors have too few instances in our material to be statistically significant. Further research is required to confirm the significance of these predictors.

Finally, Study 2 looks at modern loanwords separately from the rest of the data, in order to determine whether gender assignment principles for Jamtlandic operate differently for these words. We define 'modern loanwords' as those which have entered Jamtlandic from the time of the industrial revolution and onwards. The gender distribution of these modern words is different from the rest of the material, with a greater proportion of masculine nouns. Especially striking is the low proportion of feminine nouns (only 9.1% of modern loans are feminine). The only modern words that are assigned feminine gender in our material have a very clear reason to be feminine: they are compounds in which the head is an existing feminine-gender word in Jamtlandic (*surfplatte* 'tablet computer', *webbsie* 'web page', and *skördetröske* 'combine harvester'). This may indicate that the gender system is slowly changing in Jamtlandic, with the masculine gender increasing proportionally at the expense of the feminine gender. This is in line with the usual trajectory of the change to a two-gender system in Scandinavian – the feminine gender is weakened until the masculine and feminine genders merge (Rabb 2007, Davidson 1990, Tegnér 1892 [1962]).

This study shows that the most reliable assignment principles in Jamtlandic are the generalizations based on plural patterns, as well as the semantic tendencies for words for animals and humans (not specified for sex) to be masculine. Generalizations based on biological sex and derivational suffixes seem to be strong, but a more in-depth study with a larger sample of nouns would be necessary to confirm this statistically. Assignment principles based on plural inflection are also reliable, but it is problematic to assert that plural inflection predicts gender, since it would also be possible to say

that gender predicts plural inflection.[10] The gender distribution of modern loanwords, which is heavily weighted towards masculine gender, points to the ongoing weakening of feminine gender in Jamtlandic. This can be related to the findings of Study 1, which shows that historically feminine nouns are more likely to take non-traditional agreement than masculine nouns. Studies 1 and 2 together reveal two important mechanisms in the change to two genders: first, the susceptibility of feminine nouns to non-traditional gender agreement; and second, an influx of loanwords with mostly masculine gender, which is formally similar to the Standard Swedish common gender. Both of these processes point towards an imminent change to a two-gender system.

4.3 Study 3 – Gender assignment in six Scandinavian languages

Study 3 builds on the assignment principles explored in Study 2 by comparing Jamtlandic gender assignment to the gender assignment of five other Scandinavian languages. Here, we look at how gender assignment can change over time in related language varieties. Although much research exists on gender assignment from a contrastive perspective (Audring 2017, 2009; Duke 2010; Braunmüller 2000; Corbett 2013, 1991; Kilarski 2004; Corbett & Fedden 2016; Dekeyser 1980; inter alia), the comparative approach we take here is new. There have not been any in-depth quantitative studies on differences in gender assignment across closely related languages. As such, this is the first detailed comparative study on gender assignment in the Scandinavian languages, and the first large-scale study that systematically compares gender assignment of cognate sets. Study 3 is based on an extensive word list of 1,129 cognate sets and their genders across six different language varieties (Old Norse, Old Swedish, Norwegian, Nysvenska, Jamtlandic, and Elfdalian). This study is based on the same wordlist for Jamtlandic that was used for Study 2, and the cognates and genders for the other languages were added using dictionaries (see Section 3.2). We also added columns indicating Old Norse declension class, loan status, frequency in Swedish and Norwegian, and some semantic factors (animacy, mass/count, and concrete/abstract).

The results show that the overall gender distribution for the six language varieties is quite uniform, with masculine as the dominant gender, and neuter and feminine having a more or less equal standing. Nevertheless, 26.3% of the lexemes have variable genders in the material. This indicates that all genders are both gaining and

[10] Whether gender predicts plural inflection or plural inflection predicts gender is a matter of debate, and strong arguments exist on both sides. Nevertheless, it is clear that the two are closely tied together; see Enger (2004), Spencer (1999:37), Källström (1996), Corbett (1991:49–50).

losing members, without significantly changing the gender distribution as a whole. In order to investigate which factors contribute to the likelihood of lexemes changing gender, we perform a mixed model analysis using binomial logistic regression, with 'stable cognates' versus 'change cognates' as the dependent variable. The independent variables we look at are Old Norse gender, Old Norse declension, frequency in Norwegian and Swedish, loan status (whether a lexeme is a loanword or an inherited Scandinavian word), animacy, mass/count, and concrete/abstract. The results of the mixed model analysis shows that nouns that are feminine in Old Norse are significantly more likely to change gender than nouns that are masculine or neuter in Old Norse (p=.021). In addition, Old Norse strong feminine nouns and weak masculine nouns are significantly more likely to change gender than the other declensional class types (for strong feminine nouns, p<.001; for weak masculine nouns, p=.042). Our results show that word frequency is a significant predictor of likelihood to change genders, with high frequency words being more resistant to change (p=.004 for frequency in Norwegian, and p=.048 for frequency in Swedish). This fits with the accepted generalization that high frequency words resist morphological change (Bybee 2007), showing that change in grammatical gender should be considered to be a type of analogical change. The analysis of loanwords shows that loans are significantly more likely to have variable gender (p<.001). Among the semantic factors, animacy has a significant effect (p=.003), but mass/count and concrete/abstract does not (p=.905 and p=.189, respectively). We hypothesize that this is because animate nouns include nouns denoting humans, which have a very strong tendency to be aligned in gender with the biological sex of the referent.

A closer look at the specific changes that happen within each Old Norse declension class reveals several patterns. In particular, a gender change can occasionally come about in conjunction with a change in the final vowel. This occurs because unstressed word-final vowels in Scandinavian tend to be associated with a particular gender (Trosterud 2006, 2001; Källström 1996). For instance, Old Norse weak masculine nouns that change to feminine in the modern languages do so along with the addition of a word-final *-a* or *-e* (depending on the language), which is associated with feminine gender in these languages. This can be seen, for example, in the set DANGER 2 (ON *fári* m, No *fare* m, OSw *fara* f, Nsv *fara* f, JL *fære* f, Elf *fara* f). It is difficult to tell if the gender changed first and caused the change in vowel, or vice versa, but the correlation is clear.

The effect of loanwords on gender change is investigated in some detail in Study 3. When loanwords in our material are divided into loans that exist in Old Norse, loans that exist in Old Swedish but not Old Norse, and loans that only exist in the modern languages, we see that loanwords existing in Old Norse are significantly more likely to change gender than inherited words (p=.002), but loans that exist in Old Swedish and in modern languages are not more likely to change than inherited words (p=.305 and p=.930, respectively). We hypothesize that the high change rate is due to words

having an unstable gender in Old Norse, which leads to variable gender assignment in the daughter languages. This hypothesis is supported by research that shows that the gender of loanwords tends to be unstable when words are first borrowed, but that gender subsequently stabilizes over time as a word becomes more entrenched in the language (Corbett 1991:7).

Study 3 also looks at the effects of derivational suffixes on the gender of nouns. We find that most derivational suffixes are strongly correlated with one particular gender (with the exception of *-skap*, which can indicate multiple genders), and that in sets with varying derivational suffixes, the gender of a noun will change in each language to align with the derivational suffix that the noun carries. This lends support to research that states that derivational suffixes are important indicators of gender in Germanic (Trosterud 2006, 2001; Källström 1996; Corbett 1991:49–50). Although our research shows limited semantic influences from outside the semantic core of biological sex and animacy, we do find a few instances in which the gender of a noun seems to be influenced by semantic analogy. An example of this comes from the names for the seasons, which have all become masculine in Norwegian and Jamtlandic.

In general, Study 3 shows that gender assignment in these six related varieties is complex, but can partially be predicted by a combination of semantic and formal assignment principles. We see that phonological gender assignment becomes weaker after the Old Norse and Old Swedish periods, with the loss of the strong masculine nominative ending *-r/-er*, and the weakening of the connection between word-final vowels and gender in weak masculine and feminine nouns. This development is tied closely to the loss of case in mainland Scandinavian languages. We also see an increased likelihood for feminine nouns to change gender, which points to the relative instability of the feminine gender in these languages (as seen also in Studies 1 and 2). Finally, we find that semantic principles play a role in gender assignment. In particular, the semantic core of biological sex has a reliable effect on gender assignment. Animacy plays a role in predicting how likely a word is to change gender, due to its relation to the semantic core. However, non-core semantic principles influence gender assignment only to a limited extent. For instance, semantic association may precipitate a gender change in a limited number of situations.

5 Conclusions

This thesis looks at gender assignment in Jamtlandic from a variety of perspectives. Study 1 investigates the status of the three-gender system in four different Jamtlandic speech communities using an experimental method with picture stimuli. We look at how various social and linguistic factors can contribute to the traditionalness of the gender system in Jamtlandic. Studies 2 and 3 look at the mechanisms of gender assignment in Jamtlandic (Study 2) and compare this to five other Scandinavian languages (Study 3). Generalizations about gender assignment are proposed and assessed for three different categories of assignment tendencies: semantic, morphological, and phonological.

Study 1 shows that changes in grammatical gender can be influenced by social factors (speaker age, gender, education, socioeconomic status, and language attitudes). Although the gender system in Jamtlandic is comparatively well-preserved, we see an increased likelihood to change gender for nouns with historically feminine gender. In addition, the youngest speakers in the study have a gender system that is strongly influenced by the two-gender system of Standard Swedish. The differences are significant enough to consider these younger speakers as constituting a different population from the older speakers. This is in line with findings by Thelander (1975), Rabb (2007), and Sandström (2010), who found that speaker age is a significant factor in the decline of three-gender systems in Swedish dialects. In addition, we see that language-internal factors can influence gender usage. Historically feminine nouns are more likely to take non-traditional agreement than historically masculine nouns. Among the different agreement categories we investigated, traditional agreement is best preserved in definite articles. Study 1 constitutes an important contribution to the study of dialects in Scandinavia, as it helps us to better understand the mechanisms of attrition of three-gender systems in rural dialects. More broadly, it contributes to our understanding of how social factors can influence the degradation of rural dialects.

Study 2 proposes some gender assignment tendencies for Jamtlandic, arguing that these should be seen as generalizations, and not as hard and fast 'rules'. Generalizations are proposed along semantic, phonological, and morphological lines. The strongest assignment principles are those involving plural patterns, as well as the generalizations that words for animals and humans (not specified for sex) are masculine. In addition, the semantic core (biological sex) and derivational suffixes seem to be strong tendencies when compared to other assignment principles, but this

must be confirmed through statistical tests with a larger number of lexemes. Study 2 shows that although it may not be possible to completely predict gender assignment in languages with formal assignment systems, it is possible to make useful generalizations that can contribute to our understanding of how gender systems work. It also continues along the lines of Study 1 in the investigation of Jamtlandic's changing gender system. Looking at gender assignment of modern loanwords, we are able to see that masculine gender is much more dominant in loanwords than in the rest of the material, and feminine gender in particular is greatly reduced. This is an indication of the weakening of feminine gender in Jamtlandic.

Study 3 looks at gender assignment from a comparative perspective. While the gender distribution among the six different language varieties in our material is similar, we find that 26.3% of the cognate sets have variability in gender assignment between languages. Looking more closely at the instances in which gender varies among languages, we are able to make some interesting generalizations. First, nouns that are feminine in Old Norse are most likely to change gender. In addition, lower frequency nouns and loanwords are more likely to change, probably due to gender being less entrenched for these groups of nouns. Inanimate nouns are more likely to change gender than animate nouns, reflecting the strong tendency for nouns denoting males and females to align with the biological sex of the referent. Phonological and morphological changes often go hand-in-hand with changes in gender assignment, as certain vowel endings and derivational suffixes are associated with a particular gender. Finally, nouns can occasionally change gender based on semantic association.

The behavior of loanwords is an area that we consider at several different points in the thesis. Study 2 shows that the gender distribution of modern loans differs from that of the material at large, with an increase in the proportion of masculine gender words at the expense of feminine gender. Since gender assignment of loanwords should not differ from that of the general lexicon (Corbett 1991:81), this is indicative of a changing gender system. Study 3 shows that the gender of loanwords tends to vary between languages, most likely because of instability when the words are first borrowed into a language. Another common theme that we see throughout the studies is the weakened position of the feminine gender. In Study 1, we see that traditionally feminine nouns are more likely to take a non-traditional gender, while Study 2 shows that modern loans have a lower percentage of feminine gender. In Study 3, nouns that are feminine in Old Norse are more likely to change gender in the daughter languages. These observations can be seen as pointing to the comparatively weak position the feminine gender holds in Scandinavian. Indeed, the weakening of the feminine gender is historically what leads to the collapse of the three-gender system (Rabb 2007, Thelander 1975, Tegnér 1962), and it is possible to see the phenomenon of masculine and feminine merging to uter/common gender as the feminine gender disappearing (since the uter/common gender is formally similar to the masculine gender).

6 Directions for future research

This thesis raises several questions that would benefit from further investigation. In this section, some unresolved issues and opportunities for further research are discussed.

6.1 Additional areas of research on Jamtlandic gender assignment

An important issue raised in Study 1 is the gender system of younger speakers of Jamtlandic. This is a difficult area to investigate, as most young people no longer speak Jamtlandic. However, if the difficulty in recruiting participants could be overcome, a study on younger speakers would contribute greatly to our understanding of how gender systems deteriorate over time. Results from such a study could be compared to the results obtained for older speakers in Study 1 to form a more complete picture of the sociolinguistic situation in Jämtland, as well as the mechanisms of gender loss.

Study 2 points to some additional ways in which gender assignment principles in Jamtlandic can be investigated. A more extensive word list would be helpful in establishing further gender assignment principles, and clarifying situations in which the data is insufficient. This applies in particular to disyllabic words ending in *-u*, words with derivational suffixes, and words referring to humans or animals with a specific biological sex. A data set with more lexemes would allow for a more thorough statistical analysis, to help pinpoint which assignment principles are significant predictors of gender. Another way of testing the validity of assignment principles in Jamtlandic is an experimental approach using pseudowords. In this approach, a researcher designs pseudowords with specific semantic, phonological, and morphological characteristics. These pseudowords are presented to participants, who are asked to assign gender to the words. This approach has been successfully used to test gender assignment principles in many languages; for instance Swedish (Källström 1992), Italian (Miceli et al. 2002), and French (Seigneuric, et al. 2007; Karmiloff-Smith 1979; Tucker, Lambert & Rigault 1977).

6.2 Gender assignment to loanwords

Gender assignment to loanwords is an area that could benefit from further investigation, both for Jamtlandic and for Scandinavian languages in general. Because gender assignment principles should be productive (Enger 2009, Corbett 1991), research into the gender of loanwords in Jamtlandic would be helpful in more firmly establishing the assignment principles and gender usage patterns explored in this thesis. This could be done using an experimental approach, similar to that taken in Study 1.

Although research already exists on the topic of gender of loanwords in various Scandinavian languages (Kilarski & Krynicki 2005, Kilarski 2004, Edlund & Hene 1992, inter alia), this has not been approached from a comparative perspective. Taking a comparative perspective would help shed light on how assignment principles differ among the Scandinavian languages. An in-depth study of words loaned into Scandinavian at different points in time, from various sources, would continue along the lines of the investigation presented in Study 3. Intra-Scandinavian loanwords could also be investigated, in particular loans from the standard languages into the rural dialects. In addition, tracking the changes in gender of loanwords over time would provide a more complete picture of this topic. This would constitute an important contribution to research on the mechanisms of morphological integration of loanwords in general.

6.3 Gender development within language families

While plenty of typological research exists on gender (e.g., Corbett 1991, Matasović 2004), including the development of gender from classifiers, and the loss of gender (e.g., Dekeyser 1980), detailed diachronic studies on the trajectory of gender systems within language families has not been a topic of much research. In particular, most existing studies have taken a qualitative rather than a quantitative approach. Quantitative methods, including statistical testing, should be used to confirm linguists' intuitions about patterns observed in large data sets. The methods used in Study 3 provide a jumping-off point for a comparative study of gender in the entire Scandinavian family, and eventually in Germanic as well. A look at Indo-European as a whole, in addition to its individual branches, is an important area for future research, and would contribute greatly to our understanding of gender as a grammatical feature. This method could also be applied to other language families to broaden our understanding of the diachrony of gender assignment.

References

Ahnlund, Nils. 1948. *Jämtlands och Härjedalens historia*. Vol. 1. Stockholm: Norstedt.

Andersson, Erik. 1979. Balansen mellan grammatiskt och semantiskt genus i svenskan. *Folkmålsstudier* 26. 27–48.

Audring, Jenny. 2009. Gender assignment and gender agreement: Evidence from pronominal gender languages. *Morphology* 18(2). 93–116. doi:10.1007/s11525-009-9124-y.

Audring, Jenny. 2017. Calibrating complexity: How complex is a gender system? *Language Sciences* 60. 53–68. doi:10.1016/j.langsci.2016.09.003.

Auer, Peter, Frans Hinskens & Paul Kerswill (eds.). 2005. *Dialect change : convergence and divergence in European languages*. New York: Cambridge University Press.

Baayen, R. Harald. 2008. Analyzing Linguistics Data: a practical introduction to statistics. Cambridge: Cambridge University Press.

Braunmüller, Kurt. 2000. Gender in North Germanic: A diasystematic and functional approach. In Barbara Unterbeck, Matti Rissanen, Terttu Nevalainen & Mirja Saari (eds.), *Gender in Grammar and Cognition*, 26–53. Berlin & Boston: De Gruyter Mouton.

Bromé, Janrik. 1945. *Jämtlands och Härjedalens historia*. Vol. 2. Stockholm: Norstedt.

Buck, Carl Darling. 1949. *A dictionary of grammatical terms in linguistics*. University of Chicago Press.

Bybee, Joan. 2007. Word Frequency in Lexical Diffusion and the Source of Morphophonological Change. *Frequency of Use and the Organization of Language*. Oxford University Press.

Carling, G. (Ed.) (2019). The Mouton Atlas of Languages and Cultures. Berlin, Boston: De Gruyter Mouton. https://www.degruyter.com/view/product/431652 (26 February 2019).

Chang, Will, Chundra Cathcart, David Hall & Andrew Garrett. 2015. Ancestry-constrained phylogenetic analysis supports the Indo-European steppe hypothesis. *Language* 91(1). 194–244. doi:10.1353/lan.2015.0005.

Corbett, Greville G. 1979. The Agreement Hierarchy. *Journal of Linguistics* 15(2). 203–224.

Corbett, Greville G. 1982. Gender in Russian: An Account of Gender Specification and its Relationship to Declension. *Russian Linguistics* 6(2). 197–232.

Corbett, Greville G. 1991. *Gender*. Cambridge: Cambridge University Press.

Corbett, Greville G. & Sebastian Fedden. 2016. Canonical gender. *Journal of Linguistics* 52(3). 495–531. doi:10.1017/S0022226715000195.

Corbett, Greville G. & Norman M. Fraser. 2000. Default genders. In Barbara Unterbeck, Matti Rissanen, Terttu Nevalainen & Mirja Saari (eds.), *Gender in Grammar and Cognition*, 55–97. Berlin: Mouton de Gruyter.

Davidson, Herbert. 1990. *Han hon den : genusutvecklingen i svenskan under nysvensk tid* (Lundastudier i Nordisk Språkvetenskap: Serie A 45). Lund: Lund University Press.

Dekeyser, Xavier. 1980. The diachrony of the gender systems in English and Dutch. In Jacek Fisiak (ed.), *Historical Morphology* (Trends in Linguistics: Studies and Monographs 17), 97–111. The Hague: De Gruyter.

Delsing, Lars-Olof. 2005. The Morphology of Old Nordic II: Old Swedish and Old Danish. In Oskar Bandle, Kurt Braunmüller, Lennart Elmevik & Gun Widmark (eds.), *The Nordic languages : an international handbook of the history of the North Germanic languages* (Handbücher Zur Sprach- Und Kommunikationswissenschaft: 22:1), vol. 1. Berlin: de Gruyter.

Duke, Janet. 2010. Gender reduction and loss in Germanic: The Scandinavian, Dutch, and Afrikaans case studies. In Antje Dammel, Sebastian Kürschner & Damaris Nübling (eds.), *Kontrastive Germanistische linguistik* (Germanistische Linguistik: 206–209/2010). Hildesheim & New York: G. Olms.

Edlund, Lars-Erik & Birgitta Hene. 1992. Lånord i svenskan: Om språkförändringar i tid och rum. Wiken.

Enger, Hans-Olav. 2009a. The role of core and non-core semantic rules in gender assignment. *Lingua* 119. 1281–1299.

Enger, Hans-Olav. 2005. The Nordic languages in the 19th century II: Morphology. In Oskar Bandle, Kurt Braunmuller, Ernst-Hakon Jahr, Hans-Peter Naumann, Allan Karker & Ulf Teleman (eds.), *The Nordic Languages: An International Handbook of the History of the North Germanic Languages*, 1437–1442. Walter de Gruyter.

Enger, Hans-Olav. 2018. Why traces of the feminine survive where they do, in Oslo and Istria: How to circumvent some 'troubles with lexemes.' In Olivier Bonami, Gilles Boyé, Georgette Dal, Hélène Giraudo & Fiammetta Namer (eds.), *The lexeme in descriptive and theoretical morphology* (Empirically Oriented Theoretical Morphology and Syntax 4), 235–255. Berlin: Language Science Press.

Haspelmath, Martin & Uri Tadmor (eds.). 2009. *World Loanword Database (WOLD)*. Leipzig: Max Planck Institute for Evolutionary Anthropology. http://wold.clld.org/.

Haugen, Einar. 1976. *The Scandinavian languages : an introduction to their history* (The Great Languages). London: Faber.

Haugen, Einar. 1982. *Scandinavian language structures : a comparative historical survey* (Sprachstrukturen: Reihe A, Historische Sprachstrukturen 5). Tübingen: Niemeyer.

Haugen, Odd Einar. 2015. *Norrøn grammatikk i hovuddrag*. Oslo: Novus Förlag.

Heggstad, Leiv, Finn Hødnebø & Erik Simensen. 2008. *Norrøn ordbok*. Oslo: Det norske samlaget.

Hellquist, Elof. 1939. *Svensk etymologisk ordbok*. Lund: Gleerup.

Hockett, Charles Francis. 1958. *A course in modern linguistics*. New York: Macmillan.

Hovdenak, Marit, Laurits Killingbergtrø, Arne Lauvhjell, Sigurd Nordlie, Magne Rommetveit & Dagfinn Worren (eds.). 2006. *Nynorskordboka: definisjons- og rettskrivingsordbok*. Oslo: Det norske samlaget. https://ordbok.uib.no/perl/ordbok.cgi?OPP=&nynorsk=+&ordbok=nynorsk.

Iversen, Ragnvald. 1946. *Norrøn grammatikk*. Oslo: H. Aschehoug & Co.

Johannessen, Janne Bondi & Ida Larsson. 2015. Complexity Matters: On Gender Agreement in Heritage Scandinavian. *Frontiers in Psychology* 6. doi:10.3389/fpsyg.2015.01842.

Josefsson, Gunlög. 2013. Gender in Scandinavian: On the gender systems in Mainland Scandinavian, with focus on Swedish. *Ms., Department of Scandinavian languages, Centre for Languages and Literature, Lund University. lingbuzz*. http://ling.auf.net/lingbuzz/001966/current.pdf (18 November, 2015).

Josefsson, Gunlög. 2014. Pancake sentences and the semanticization of formal gender in Mainland Scandinavian. *Language Sciences* (Exploring Grammatical Gender) 43(Supplement C). 62–76. doi:10.1016/j.langsci.2013.10.009.

Källström, Ingrid. 1992. Låk, snöckel och skuddeman. Om genus hos 20 nonsensord. *Till Rune från oss*. Göteborg: Institutionen för svenska språket.

Källström, Roger. 1996. On gender assignment in Swedish. *The Nordic Languages and Modern Linguistics*, 151–167. Oslo: Novus Förlag.

Kardell, S.J. 1924. Jämtlands läns historia. In Karl Ahlenius & Otto Sjögren (eds.), *Sverige : geografisk, topografisk, statistisk beskrifning*, 314–317. Stockholm: Wahlström & Widstrand.

Karmiloff-Smith, A. 1979. *A Functional Approach to Child Language: A Study of Determiners and Reference.* Cambridge: Cambridge University Press.

Kilarski, Marcin. 2004. Gender Assignment in Danish, Swedish and Norwegian: A Comparison of the Status of Assignment Criteria. *Nordlyd* 31(2).

Kilarski, Marcin & Grzegorz Krynicki. 2005. Not arbitrary, not regular: The magic of gender assignment. In Nicole Delbecque, Johan van der Auwera, & Dirk Geeraerts (eds). *Perspectives on variation: Sociolinguistic, historical, comparative,* 235–250.

Kluge, Friedrich. 2002. *Etymologisches Wörterbuch der deutschen Sprache*. Berlin & New York: de Gruyter.

Kristoffersen, Kristian Emil. 2005. The morphology of Old Nordic I: Old Icelandic and Old Norwegian. In Oskar Bandle, Kurt Braunmüller, Ernst Håkon Jahr, Allan Karker, Hans-Peter Naumann & Ulf Teleman (eds.), *The Nordic languages: an international handbook of the history of the North Germanic languages* (Handbücher Zur Sprach- Und Kommunikationswissenschaft [HSK] 22.2), 911–925. Berlin: de Gruyter.

Labov, William. 2001. *Principles of Linguistic Change*. Vol. 2: Social Factors. Malden & Oxford: Blackwell.

List, Johann-Mattis, Michael Cysouw & Robert Forkel. 2016. Concepticon: A Resource for the Linking of Concept Lists. *Proceedings of the Tenth International Conference on Language Resources and Evaluation* 2393–2400.

Matasović, Ranko. 2004. *Gender in Indo-European*. Heidelberg: Universitätsverlag Winter.

Miceli, G, P Turriziani, C Caltagirone, R Capasso, F Tomaiuolo & A Caramazza. 2002. The neural correlates of grammatical gender: An fMRI investigation. *Journal of cognitive neuroscience* 14(4). 618–628.

Nesset, Tore. 2006. Gender meets the Usage-Based Model: Four principles of rule interaction in gender assignment. *Lingua* (The Grammar of Gender) 116(9). 1369–1393. doi:10.1016/j.lingua.2004.06.012.

Nichols, Johanna. 2003. Diversity and stability in language. In Brian D. Joseph & Richard D. Janda (eds.), *The handbook of historical linguistics* (Blackwell Handbooks in Linguistics), 283–311. Oxford: Blackwell.

Noreen, Adolf. 1903. Vårt språk: nysvensk grammatik i utförlig framställning. Lund: Gleerups.

Nyström, Gunnar & Yair Sapir. 2018. Ymse om övdalsku: En introduktion till det älvdalska språket och dess struktur. Älvdalen: Ulum dalska.

Oscarsson, Bo. 2007. *Orlboka*. Östersund: Jengel Förlag AB.

Oscarsson, Bo & Georg Nygren. 1973. Jämtmålets form- och ljudlära. *En bok om jämtskan: med ordlista, grammatik och läsövningar*, 57–68. Östersund: Wisénska bokh., 1973.

Österberg, Karl Lorenz. 1914. *Ovikens bygdemål i Jämtland*. Lund: Berlingska boktryckeriet.

Pamp, Bengt. 1978. *Svenska dialekter*. Stockholm: Natur och kultur.

Rabb, Viveca. 2007. Genuskongruens på reträtt : variation i nominalfrasen i Kvevlaxdialekten. Ph.D. dissertation, Åbo Akademi University.

Reinhammar, Vidar. 2005. *Hammerdalsmålet*. Uppsala: Kungliga Gustav Adolfs akademien för svensk folkkultur.

Rice, Curt. 2006. Optimizing gender. *Lingua* 116(9). 1394–1417.

Sakel, Jeanette & Daniel Leonard Everett. 2012. *Linguistic fieldwork: a student guide* (Cambridge Textbooks in Linguistics). Cambridge & New York: Cambridge University Press.

Sandström, Caroline. 2010. *Genus i östra Nyland: från dialektutjämning till dialektmarkör*. Ph.D. dissertation, University of Helsinki.

SCB. 2015. Folkmängden efter region, civilstånd, ålder och kön. År 1968–2015. *Statistikdatabasen*. http://www.statistikdatabasen.scb.se/pxweb/sv/ssd/START__BE__BE0101__BE0101A/BefolkningNy/?rxid=8c23151c-a5bb-4fe9-9090-1316102406f7 (26 October, 2016).

Schlyter, Carl Johan. 1877. Corpus iuris sueo-gotorum antiqui. Samling af Sweriges gamla lagar, på kongl. maj:ts nådigste befallning utgifven af d. C.J. Schlyter. (Ed.) Hans Samuel Collin. Lund, i kommission hos C. W. K. Gleerup.

Seigneuric, Alix, Daniel Zagar, Fanny Meunier & Elsa Spinelli. 2007. The relation between language and cognition in 3- to 9-year-olds: The acquisition of grammatical gender in French. *Journal of Experimental Child Psychology* 96. 229–246. doi:10.1016/j.jecp.2006.12.003.

Söderwall, K. F. 1884. *Ordbok öfver svenska medeltids-språket* (Samlingar Utgivna Av Svenska Fornskriftsällskapet: Serie 1 Svenska Skrifter 150). [Stockholm: Svenska fornskriftsällskapet, 2007].

Speelman, Dirk. 2014. Logistic regression: A confirmatory technique for comparisons in corpus linguistics. In Dylan Glynn & Justyna A. Robinson (eds.), *Human Cognitive Processing*, vol. 43, 487–533. Amsterdam: John Benjamins Publishing Company. doi:10.1075/hcp.43.18spe. https://benjamins.com/catalog/hcp.43.18spe (11 February, 2019).

Steensland, Lars. 2010. *Material till en älvdalsk ordbok : svenska-älvdalska, älvdalska-svenska*. Älvdalen: Ulum dalska 2010. http://xn--lvdalsk-4wa.ordbok.gratis/.

Steinmetz, Donald. 1985. Gender in German and Icelandic: inanimate nouns. In Jan Terje Faarlund (ed.), *Germanic linguistics : papers from a symposium at the University of Chicago, April 24, 1985*, 10–28. Bloomington, Indiana: Indiana University Linguistics Club.

Steinmetz, Donald. 1986. Two principles and some rules for gender in German: Inanimate nouns. *WORD* 37(3). 189–217. doi:10.1080/00437956.1986.11435777.

Steinmetz, Donald. 2006. Gender shifts in Germanic and Slavic: semantic motivation for neuter? *Lingua* 116. 1418–1440. doi:10.1016/j.lingua.2004.06.014.

Svenska akademien. 1997. Svenska akademiens ordbok. [Elektronisk resurs]. Göteborg: Språkdata.

Tagliamonte, Sali. Variationist Sociolinguistics: Change, Observation, Interpretation. Oxford: Blackwell.

Tegnér, Esaias. 1892 [1962]. *Om genus i svenskan*. 3rd edn. Stockholm.

Thelander, Margareta. 1975. *Grammatiskt genus i en nutida norrländsk talgemenskap* (Rapport / Forskningskommittén i Uppsala För Modern Svenska / FUMS: 37). Uppsala.

Thieberger, Nick. 2012. The Oxford Handbook of Linguistic Fieldwork. OUP Oxford.

Thornton, Anna M. 2009. Constraining gender assignment rules. *Language Sciences* 31(1). 14–32. doi:10.1016/j.langsci.2007.09.003.

Trosterud, Trond. 2001. Genus i norsk er regelstyrt. *Norsk lingvistisk tidsskrift* 19. 29–58.

Trosterud, Trond. 2006. Gender assignment in Old Norse. *Lingua* (The Grammar of Gender) 116(9). 1441–1463.

Tucker, G. Richard., W.E. Lambert & A.A. Rigault. 1977. French speaker's skill with grammatical gender : an example of rule-governed behavior. The Hague: Mouton.

Urban, Matthias. 2014. Lexical semantic change and semantic reconstruction. In Claire Bowern & Bethwyn Evans (eds.), *The Routledge Handbook of Historical Linguistics*, 374–392. London–New York: Routledge.

Van Epps, Briana & Gerd Carling. 2017. From three genders to two: the sociolinguistics of gender shift in the Jämtlandic dialect of Sweden. *Acta Linguistica Hafniensia* 49(1). 53–84. doi:10.1080/03740463.2017.1286811.

Wessén, Elias. 1945. *Våra folkmål*. Stockholm: Fritzes.

Wessén, Elias. 1955[1969]. *Svensk språkhistoria I: Ljudlära och ordböjningslära*. Stockholm: Filologiska föreningen vid Stockholms högskola.

Zoëga, Geir T. 1857 [1910]. *A concise dictionary of Old Icelandic*. Oxford: Clarendon Press. http://norse.ulver.com/dct/zoega/index.html.

This thesis focuses on Jamtlandic (or *jamska*), a language variety spoken in northern Sweden at the Norwegian border. Jamtlandic maintains the three-gender system from Old Norse (with masculine, feminine, and neuter), but shows signs of influence from the two-gender system of Swedish (in which the masculine and feminine collapsed into a single 'common' gender). The first study of this thesis looks closely at the social factors that influence Jamtlandic speakers' gender usage, while the second and third studies investigate gender assignment principles for Jamtlandic and five other Scandinavian languages. Together, these studies show that the feminine gender has a weaker status than the masculine and neuter genders. This can be related to the overarching trend for Germanic languages to lose the feminine gender.

Printed by Media-Tryck, Lund 2019 NORDIC SWAN ECOLABEL 3041 0903

LUND UNIVERSITY

The Faculties of Humanities and Theology
Centre for Languages and Literature
ISBN 978-91-88899-38-5