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Possessive expressions in Danish and Swedish in a diachronic and synchronic perspective

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Abbreviations

Abbreviations used in glosses

1	first person
2	second person
3	third person
ACC	accusative
ADE	adessive
ADJ	adjective
AL	alienable
ART	article
C	common gender
CL	noun class
DAT	dative
DEF	definite
DEM	demonstrative
DIR	directional
F	feminine gender
FORM.SBJ	formal subject
GEN	genitive
INAL	inalienable
INDF	indefinite
INE	inessive
INF	infinitive
INSTR	instrumental
LOC	locative
M	masculine gender
N	neuter gender
NOM	nominative
OBL	oblique
PASS	passive
PL	plural
POSS	possessive
PR.ART	proprial article
PRS	present tense
PTCP	participle
REFL	reflexive
S	s-genitive
SG	singular
ST	strong form
WK	weak form

Abbreviations used for corpus texts

DA   Danish
SV   Swedish

DA_CH   *Christian 4.s håndfæstning*
DA_ErL   *Eriks Lov*
DA_FA   *Fremmedartiklerne*
DA_FO   *Christoffer 3. af Bayerns forordning om landefred*
DA_FOA   *Frederik 2.s ordinans om ægteskabssager*
DA_FOB   *Forordning om Betlere*
DA_FOKBB   *Forordning Om Klædedragt, Bryllupper, Barseler og Giestebudde*
DA_GD   *Gesta danorum*
DA_Jer   *Af Jeronimi levned*
DA_Jesu   *Jesu Barndoms Bog*
DA_Kat   *Af Katerine legende*
DA_Kerst   *Aff Sancte Kerstine hennis pyne*
DA_KM   *Karl Magnus Krønike*
DA_KO   *Kirkeordinansen*
DA_Mar   *Aff Sancta Marina*
DA_MK   *Mariaklagen*
DA_ML   *Marialegende*
DA_OG   *Ove Gieddes ekspedition*
DA_PH   *Poul Helgesens Skibbykrønike*
DA_Pouel   *Huoel Sancte Pouel vort pint*
DA_RAJ   *Roskilde adelige Jomfrukloster*
DA_SB   *Skriftemålsbøn*
DA_SKL   *Skånske Kirkelov*
DA_SL   *Skånelagen*
DA_ST   *Sjalens trost*
DA_UCM   *L. C. Ulfeldt Confrontationen I Malmø*
DA_URK   *L. C. Ulfeldt Rejsen til Korsør*
DA_VL   *Valdemars Lov*

SV_AH   *Agneta Horns beskrivning*
SV_Arn   *Arndt: En sann christendom*
SV_AV   *Anna Vasas brev*
SV_AVL   *Äldre Västgötalagen*
SV_Bur   *Codex Bureanus*
SV_CCG   *Carl Carlsson Gyllenhielms anteckningar*
SV_Did   *Didrikssagan*
SV_DL   *Dalalagen*
SV_HML   *Helga manna leverne*

SV_HS	*Haqvin Spegel Dagbok*
SV_Jart	*Järteckensboken*
SV_JS	*Jon Stålhammars brev*
SV_KM	*Karl Magnus*
SV_Linc	*Linköpingslegendariet, Legenden om Sankta Amalberga*
SV_OgL	*Östgötalagen*
SV_OP	*Olaus Petri kronika*
SV_Pent	*Pentateukparafrasen*
SV_PS	*Peder Swarts Kronika*
SV_ST	*Själens tröst*
SV_SVM	*Sju vise mästare*
SV_Troja	*Historia Trojana*
SV_UH	*Urban Hiärne: Stratonice*

Introduction

Whenever two constructions can be used in the same function, like the Danish and Swedish s-genitive (*husets tak* 'the house's roof') and the prepositional construction (*taket på huset* 'the roof of the house'), numerous constraints and factors are at work to establish the selection of one construction over the other. These factors may be phonological, morphological, syntactic, semantic, pragmatic, or even stylistic. The variation between these two attributive possessive constructions (known as genitive variation or possessive variation) has been researched extensively in English (Altenberg 1982; Jucker 1993; Rosenbach 2002; 2003; 2005; 2008; 2017; Kreyer 2003; Hinrichs & Szmrecsanyi 2007, to name just a few). The northern branch of the Germanic languages, to which Danish and Swedish belong, has not been studied to the same extent with respect to the distribution of possessive constructions or genitive variation, from either a synchronic or a diachronic perspective. Examples of the constructions in question are given below.

(1)   DANISH
       a.   *Danmark-s   statsminister*
            Denmark-S   Prime.Minister
            'Denmark's Prime Minister'

       b.   *statsminister-en   i   Danmark*
            Prime.Minister-DEF   in   Denmark
            'The Prime Minister of Denmark'

(2)   DANISH
       a.   *kultur-en-s   betydning*
            culture-DEF-S   significance
            'the culture's significance'

       b.   *betydning-en   af   kultur-en*
            significance-DEF   of   culture-DEF
            'the significance of the culture'

(3)   SWEDISH
       a.   *barn-et-s   föräldr-ar*
            child-DEF-S   parent-PL
            'the child's parents'

b.   *föräldr-ar-na*   *till*   *barn-et*
       parent-PL-DEF.PL   to   child-DEF
       'the parents of the child'

(4)   SWEDISH

a.   *text-en-s*   *budskap*
       text-DEF-S   message
       'the text's message'

b.   *budskap-et*   *i*   *text-en*
       message-DEF   in   text-DEF
       'the message of the text'

As examples (1–4) illustrate, the s-genitive and the prepositional construction are often interchangeable in Danish and Swedish. Compare, however, examples (5) and (6), in which one of the constructions is less acceptable, or is acceptable in specified contexts only, for instance, *boken av Anna* 'the book of Anna', if acceptable at all, suggests authorship rather than ownership.

(5)   SWEDISH

a.   *Anna-s*   *bok*
       Anna-S   book
       'Anna's book'

b.   *?bok-en*   *av*   *Anna*
       book-DEF   of   Anna
       'the book of Anna'

(6)   SWEDISH

a.   *omslag-et*   *på*   *en*   *ny*   *bok*
       cover-DEF   on   INDF   new   book
       'the cover of a new book'

b.   *?en*   *ny*   *bok-s*   *omslag*
       INDF   new   book-S   cover
       'a new book's cover'

The question that remains — and the question that is the main focus of this dissertation — is, therefore, what factors govern the selection of the s-genitive and the prepositional construction in Danish and Swedish.

      This introductory chapter begins with a brief presentation of the constraints on possessive variation explored in the dissertation (section 1.1). In section 1.2, I specify the aim and research hypotheses of the empirical studies. Section 1.3 presents the structure of the dissertation.

1.1 Constraints in possessive variation

The theoretical approach taken in this dissertation is a functionalist one (see, in particular, the frameworks of Halliday 1970; 1973; Dik 1978; Siewierska 1991; Givón 1995a; 2001; Halliday & Matthiessen 2004). The basic tenets of Functional Grammar that inform the design of the empirical studies presented in Chapters 5 and 6 are: (1) language structure serves cognitive or communicative functions; (2) structure is non-arbitrary, motivated and iconic; and (3) change and variation are ever-present (Givón 1995a: 9). The second premise is particularly important, as it invokes the idea that language structure is governed by certain linguistic or extra-linguistic factors. Among the factors most often identified in the previously cited research on English genitive variation are: animacy, topicality, weight (or length), and type of possessive relation. Based on these factors and on the basic premises of functionalist frameworks, constraints that might apply to possessive variation in Danish and Swedish can be identified. The factors and their categorization are given in Table 1. They are explored in this dissertation predominantly with respect to the possessor referent (PR referent, i.e. the entity in a possessive relation to which another entity belongs, e.g. ***Anna's*** books), but also at times with respect to the possessum referent (PM referent, i.e. the entity belonging to another entity, e.g. *Anna's **books***; see also section 2.1 for definitions of PR and PM referents).

Table 1. The factors explored with respect to possessive constructions in Danish and Swedish

Variable	Categories
ANIMACY	human, abstract animate, animal, collective, spatial, temporal, inanimate
DEFINITENESS	proper name, definite, possessed, indefinite, zero-marked
TOPICALITY	given, new
SEMANTIC NOTIONS OF POSSESSION	ownership, kinship, part–whole, social role, control, locative, temporal, abstract, attributive, author
LENGTH	syllable count of possessor and possessum NPs
NUMBER	singular, plural
COUNTABILITY	countable, mass
CONCRETENESS	concrete, abstract
GENRE or REGISTER	Genre: legal, religious, profane prose (for historical texts) Register: literary, press, blog texts (for contemporary texts)

The s-genitive construction, as it places the possessor referent first in a possessive NP, is presumed to favour animate (in particular, human), definite, and topical possessor referents, while the prepositional construction is presumed to favour inanimate, indefinite, and new, non-topical referents. These assumptions, however, as well as the distribution of possessive constructions with respect to the aforementioned factors, have so far not been tested

empirically for Danish and Swedish. Furthermore, as the third tenet of Functional Grammar presupposes, variation is the source of change and vice versa. It is thus also essential to explore the diachronic aspect of the two possessive constructions and of the factors that may influence their selection. While the diachronic aspect of possessive variation has been studied in English to some extent (Thomas 1931; Mustanoja 1960; Rosenbach 2002), there are no such studies for North Germanic. By combining the synchronic and the diachronic perspectives in the study of possessive variation in Danish and Swedish, I aim to provide an innovative approach to the subject matter.

1.2 Aim and research hypotheses

The aim of this dissertation is to examine the distribution and characteristics of adnominal possessive constructions in Danish and Swedish from both a diachronic and a synchronic perspective. Two corpus studies are conducted. The first study is based on a corpus of historical Danish and Swedish texts written between 1250 and 1700. The second study is based on a newly compiled corpus of contemporary texts, including literary, press and blog texts. Utilizing various statistical tests, such as the chi-square test of independence and regression analysis (see section 4.4 for a detailed description), I measure the effect of selected semantic and pragmatic factors (listed in Table 1) on the use of a given possessive construction. In this way, the factors that have the greatest impact on the selection of the possessive, be it the s-genitive or the prepositional construction, will be determined and compared between the two corpora.

The variation between the s-genitive and the prepositional construction is the main focus of both studies; however, the pronominal construction with regular possessive pronouns (*hennes hus* 'her house') and reflexive possessive pronouns (*Hon älskar sitt hus* 'She loves her [own] house') is also explored, in particular in historical texts (see Chapter 5). While the aforementioned factors (like animacy or definiteness) cannot be considered with respect to possessive pronouns, the difference in accessibility of possessor referents expressed through pronouns and full NPs is worth exploring, especially with regard to what notions of possession dominate in these expressions.

The research hypotheses to be tested throughout the dissertation are the following:

A. The use of a particular possessive construction is not arbitrary, but depends on interconnected constraints.

B. The constraints on the use of possessive constructions change over time.

C. In historical texts, the adnominal possessive constructions are used more frequently for expressions of prototypical notions of possession than for expressions of more marginal notions. Thus, the use of possessives advances from prototype to periphery.

The hypotheses stem from the basic tenets within the functionalist framework, and they will be explored with respect to such concepts as iconic and economic motivation in language, the

hierarchical categorization of notions (e.g. the animacy hierarchy, or the prototype and periphery dichotomy), and the role of information structure.

As regards the selection of material for the study of adnominal possessive constructions, the choice of two so closely related languages, with few differences in the structure of NPs, might seem controversial. Danish and Swedish are chosen precisely because they are so similar — firstly, the fact that these languages, both in their historical development and at present, make use of the same possessive constructions allows for a very uniform study of the factors that may influence the selection of possessives in both languages. This would not be possible if the comparison were between Danish or Swedish and, for example, Norwegian, where the scope of use of the s-genitive and the prepositional construction differs in many ways from that found in the Eastern branch of the Scandinavian languages, or Icelandic, which has retained genitive case inflection (see also section 3.3 for references). Secondly, research on the adnominal possessive constructions in Danish and Swedish has so far been quite homogeneous, in that the s-genitive construction and its diachronic development have been studied extensively (see Delsing 1991; 2001; Norde 1997; 2006; 2011; 2013; Börjars 2003; Piotrowska 2017; 2018a for Swedish; see Herslund 2001; Heltoft 2010; Perridon 2013 for Danish), but the history and distribution of the possessive prepositional construction have not received much attention in either Danish or Swedish linguistics. This dissertation aims to bridge the gap in research on the prepositional construction and provide a comprehensive comparison of its distribution in Danish and Swedish.

Further, the timeframes selected for the corpora, namely 1250 to 1700 for the diachronic study and ca. 2014–2019 for the contemporary study, leave quite a substantial gap in the time period covered by the texts. This choice was made consciously, on the basis of the periodization of Danish and Swedish and their quite similar language histories (see also section 4.2.1). In both languages, the oldest extant texts written in the Latin alphabet originate ca. 1200–1250. These texts, despite containing very distinctive legal language, give an insight into the beginnings of Old Danish and Old Swedish, and they must therefore be included in the study of the development of possessive expressions. The beginning of the 18th century, on the other hand, traditionally marks the transition to the Modern varieties of Danish and Swedish. It is commonly assumed that any major changes to the phonological, morphological and syntactic structure of Danish and Swedish took place before 1700. The selection of the timeframes of the corpora is, thus, an informed decision, although I do not exclude the possibility that some changes in the distribution of the possessives might have occurred after 1700.

1.3 Structure of the dissertation

The dissertation is organized as follows: Chapter 2 presents previous studies and literature on the topic of possession as a linguistic concept. In particular, I focus on the definitions of possession and the semantic sources behind the notions connected to possession. A variety of examples of possessive constructions, both predicative and adnominal, are presented in a typological perspective. Chapter 3 is an overview of the adnominal possessive constructions used in present-day Danish and Swedish. I discuss both the most frequent constructions used

in the standard varieties of these languages and the less frequent or less well-known constructions found in dialects of Danish and Swedish. In Chapter 4 I discuss the methodological framework of Functional Grammar employed in the empirical studies, with a focus on the animacy hierarchy, iconic and economic motivation in language, and topicality. In the same chapter I present the corpora of texts used in the studies, together with the principles of annotation and the annotation tool, DiaPoss. The statistical tests used throughout the studies are also introduced and described in Chapter 4. Chapters 5 and 6 present the results of two empirical studies. In Chapter 5 I discuss the results of the study of Danish and Swedish historical texts written between 1250 and 1700. An overview of adnominal possessive constructions found in these texts is given, with a particular focus on constraints on the use of the genitive construction and the semantic notions of possession expressed through adnominal possessives. In Chapter 6 I discuss the results of the study of the variation between the s-genitive and the prepositional construction in present-day Danish and Swedish. Utilizing statistical models based on regression analysis, I identify the factors that have the greatest effect on the selection of the s-genitive. Chapter 7, in which I revisit the research hypotheses, summarizes and concludes the dissertation.

CHAPTER 2

Possession and possessive constructions

This chapter provides an overview of previous studies and literature on the linguistic concept of possession from a largely typological perspective. In section 2.1 I present and discuss the definition of possession as well as different types of relationships between referents often expressed through possessive constructions. In 2.2 I discuss the sources, or cognitive schemas, related to the notion of possession, in particular, the schema of location and existence. Section 2.3 presents three main types of possessive constructions, namely predicative, attributive (=adnominal), and external possession. In section 2.4 I expand on the topic of attributive possession, as it is the focus of the dissertation. The chapter concludes with a discussion of the notion of definiteness in relation to possessive constructions.

2.1 The semantic notions of possession

Any study concerning possessive constructions has first to tackle the question of what the concept of linguistic possession actually is. Possession is one of the most universal domains, as every human language has some conventionalized means of expressing the notion of owning or possessing something (Heine 1997: 1). Nevertheless, possession is such a broad, and often vague, concept that in describing or defining the linguistic expressions of possession, one is confronted with the problem of delimiting possession from other related conceptual notions. For instance, it is not an easy task to separate possession from notions of location or existence in certain cases. As Stassen (Stassen 2009: 5) points out, authors have debated extensively whether possession constitutes a separate conceptual domain, or whether it should be reduced to other, more general domains. It has been suggested, in particular, that possession is in fact a subdomain of a more basic concept of location. I will return to this question in section 2.2, but for now, suffice it to say that I agree with Stassen (2009: 5) and Heine (1997: 202–207), who claim that possession is conceptually linked to location, but the two concepts should nevertheless be kept apart. The concept of possession is further connected to other domains, in that the ways of encoding possessive relations are also used for encoding other relations. First of all, in some languages, expressions of possession constitute a diachronic basis for the formation of some aspectual notions, such as perfective or progressive, or for expressions of deontic modality (Stassen 2009: 5). The following examples illustrate the diachronic links between possession and the aforementioned concepts in Swedish, Swahili and English respectively.

(7)   SWEDISH
        a.   Possession:
                Han   har   en   hund
                3SG.M   has   INDF   dog
                'He has a dog'

        b.   Perfective:
                Han   har   jobbat
                3SG.M   has   worked
                'He has worked' (own data)

(8)   SWAHILI
        a.   Possession:
                Wa-na   pesa
                they-be.with   money
                'They have money'

        b.   Progressive:
                Wa-na-ku-la
                they-be.with-INF-eat
                'They are eating' (Heine 1997: 189)

(9)   ENGLISH
        a.   Possession:
                I have a motorcycle

        b.   Deontic modality:
                I have to work (Stassen 2009: 6)

Secondly, possessive expressions form a basis for expressions of existence in some languages, as is shown in the following examples from French and Swahili.

(10)   FRENCH
        a.   Possession:
                Il   a   un   cheval
                he   has   INDF   horse
                'He has a horse'

        b.   Existence:
                Il   y   a   des   gens   qui   fument
                it   there   has   INDF   people who   smoke
                'There are people who smoke' (Stassen 2009: 6)

(11) SWAHILI

    a.   Possession:

             Wa-na   *pesa*

             they-be.with   money

             'They have money' (Heine 1997: 189)

    b.   Existence:

             Pa-na   *watu*   *wengi*

             there-be.with people   many

             'There are many people' (lit. 'There has (it) many people') (Heine 1997: 206)

The diachronic links between possessive constructions and notions other than possession are thus well-attested in typological studies on possession. The multitude of concepts related to possession and the inherent vagueness of possessive relations make it somewhat difficult to define the notion of possession explicitly. As Herslund and Baron (2001: 1) point out, possession is a concept, not a linguistic construction, and therefore linguists and grammarians most often choose an onomasiological approach to defining possession, that is, an approach in which one focuses on what expressions or relations are used for possessive meanings, from which the definition of possession is drawn. I will thus start with an intuitive, most basic notion of possession, expanding it by listing possible relations that fall under the domain of possession, following traditional linguistic research (Seiler 1977; 1983; Taylor 1989; 1995; Langacker 1995; Heine 1997) as well as modern linguists' insights (Fraurud 2001; Koptjevskaja-Tamm 2002b; McGregor 2009b; Stassen 2009).

      Starting with some basic premises, the semantic concept of possession always entails a relation between two entities, which throughout this study will be called the *possessor* and the *possessum* (abbreviated PR and PM). The relation between these two entities is such that the possessor is seen as being in some way related to the possessum, as having it near or controlling it (Herslund & Baron 2001: 2). Note that this relation necessarily entails locational or spatial notions. This type of relation between referents may be understood as a contiguous relation, that is, one referring to spatial proximity between entities or more broadly as associations in the spatial or temporal domain (see e.g. Heinz 1957; Geeraerts 2017). Further, the relation between the possessor and the possessum is not symmetric, as it necessarily involves the intuitive and common-sense notion of 'belonging' (Stassen 2009: 11). In other words, a case of possession involves a relation in which one entity, the possessum, can be described as belonging to another entity, the possessor. A clear example of the relation of 'belonging' is illustrated in noun phrases like the one in (12) in the sense of 'books which belong to Anne'.

(12) *Anne's books*

However, the same or other constructions may be used for expressing possessive relations which in one way or another deviate from the basic concept of 'belonging', as in the following examples.

(13)   *Anne's sisters*

(14)   *The dog's tail*

(15)   *Anne has a cat on her lap*

(16)   *Anne has flu*

These examples include cases which are not seen as 'core' or 'prototypical' possession (Stassen 2009: 11). Possession, like other linguistic categories, has a prototype structure, where central members share semantic and syntactic attributes. However, the lack of some of these central attributes that prototypes have does not necessarily preclude an item from membership of a given category (Taylor 1995: 196). What is the semantically defined prototype of possession? According to Taylor (1995: 202), the prototypical instances of possession share the following properties:

(17)   a.   the possessor is a specific human being
        b.   the possessum is a specific concrete object (usually inanimate)
        c.   the relation is an exclusive one (i.e. for each object possessed there is only one possessor)
        d.   the possessor has the right to make use of the possessum
        e.   the possessor's rights over the possessum are obtained via purchase, donation or inheritance
        f.   the possessor is responsible for the possessum
        g.   the possessor and the possessum need to be in close spatial proximity
        h.   "the relation of possession is a long-term one, measured in months and years rather than minutes and seconds" (Taylor 1995: 202).

It is clear from the aforementioned properties that Taylor is describing the specific relation of legal OWNERSHIP. Example (12) (*Anne's books*) may be described using all of the attributes above; however, examples (13) to (16) share only some of the prototypical qualities. These relationships may thus be described as extensions, some minimal, some quite substantial, from the prototype. Example (13) deviates from the prototypic possessive relation in that the possessum, as well as the possessor, are specific human beings in a KINSHIP relation. The noun phrase in (14) is an example of the relationship between an animate being and its body-part, which may be called a MERONYMIC or PART–WHOLE relationship. In the case of this type of possessive relation, the possessor does not need to be human or even animate. However, the prototypical attributes of close spatial proximity and long-term duration are attested for PART–WHOLE relationships. A part is by definition near the entity of which it is an integral constituent, and that relation cannot usually be a temporary one.

Heine (2001: 312) defines possession as a bio-cultural domain involving a relationship between a prototypically human possessor, which in most cases is presented as the topic, and the possessum, which is most often presented as the comment. Langacker (1995: 57) names the following three relationships as prototypically possessive: OWNERSHIP, KINSHIP and

PART–WHOLE (especially body-part nouns), as they are "universally expressed by basic possessive structures". In his classical definition of possession, Seiler also draws on the same notions: "Semantically, the domain of POSSESSION can be defined as bio-cultural. It is the relationship between a human being and his kinsmen, his body parts, his material belongings, his cultural and intellectual products. In a more extended view, it is the relationship between parts and wholes of an organism" (Seiler 1983: 4; cited in Herslund & Baron 2001: 2). Similarly, Premack and Premack (1994) understand possession from an anthropological point of view as a relation between a person and an object (OWNERSHIP), the movement of the person and object together (PART–WHOLE) and control of the object by the possessor (CONTROL). The connection and co-movement of the possessor and the possessum is thus not enough to determine possession, as there is also always some asymmetrical power relation between the two referents. The possessor will always be the controlling referent, whereas the possessum will be the controlled one. Possession is thus said to be located at the intersection of two parameters, and it can be described "with reference to the extent of control the possessor has over the possessee on the one hand, and the length of time during which the possessee is located in proximity to the possessor on the other" (Heine 1997: 38–39). In this way, the prototypical cases of possession may be described as those where the possessor and the possessum are in some relatively enduring locational relation and the possessor exerts control over the possessum (Stassen 2009: 15).

Other, non-prototypical possessive relations include an ATTRIBUTIVE relation, that is, a long-term relation between an entity and its properties (see examples in (18)). SOCIAL RELATIONS or ROLES may also be expressed with possessives (see examples in (19)) (Koptjevskaja-Tamm 2002b: 147). Another extension of the prototype is the CONTROL relation (otherwise called the DISPOSAL relation), used for the relationship between the possessor and items or phenomena over which they have usership rights or control (see examples in (20)), as well as relations between people and their cultural and intellectual products (see examples in (21)), which I will call the AUTHOR relation (McGregor 2009a: 1).

(18) a.   *John's intelligence*
      b.   *the car's colour*

(19) a.   *Peter's neighbour*
      b.   *a friend of mine*

(20) a.   *the secretary's computer*
      b.   *my bus* (e.g. the one I take to work every day)

(21) a.   *the author of the book*
      b.   *my paper / my study*

Other types of relations, which I take to be subtypes of inanimate possession, i.e. expressions that include an inanimate possessor referent, are LOCATIVE and TEMPORAL possessives (see examples (22) and (23) respectively).

(22) a. *Stockholm's theatres*
     b. *the streets of London*

(23) a. *Monday's performance*
     b. *yesterday's paper*

Following Koptjevskaja-Tamm (2002b: 150), I understand LOCATIVE possessives to include possessive NPs where the possessor is a geographical proper name or a common noun denoting a place. The theatres in (22) are located in Stockholm and therefore have a LOCATIVE relation with it. One could argue, however, that Stockholm's theatres, banks or shops are at the same time a part of the city, as the city is made up of all of its buildings, citizens, events and phenomena. Koptjevskaja-Tamm (2002b: 142) points out that LOCATIVE possessives are in fact a variant of the PART–WHOLE relationship, which explains the ease with which geographical locations or "possible people containers" (Fraurud 1999; cited in Koptjevskaja-Tamm 2002b: 150) serve as anchors in LOCATIVE relations. Other inanimate nouns are quite restricted in this case; for instance the sentence *Aulans diaprojektor funkar inte* 'The hall's slide projector would not work' refers only to the projector that is constantly based in the said hall and constitutes a part of the hall (Koptjevskaja-Tamm 2002b: 150). LOCATIVE relations may thus be seen as an extension or variety of the PART–WHOLE relationship. As regards TEMPORAL possessives,[1] they include possessors in the form of expressions referring to time intervals and time points. A previous study on temporal genitives in Swedish by Carlsson (1996) showed that the most frequently used expressions among 393 excerpted genitives were *dagens* 'of the day' (108), *årets* 'of the year' (83) and *säsongens* 'of the season' (51). The possibility of using possessive expressions for LOCATIVE and TEMPORAL relations differs greatly across languages. This variation is often connected to differences in the semantic and morpho-syntactic properties of certain lexemes (Koptjevskaja-Tamm 2002b: 151). I include LOCATIVE and TEMPORAL possessives in the present study as they are well-attested in both Danish and Swedish. A clear preference for s-genitive constructions among these two types of possessives will be further explored.

There are also a number of other, more ABSTRACT relations that can be expressed with possessives. For instance, Taylor (1995: 204) mentions possessives with deverbal nouns (like *arrival*, *invasion*, etc.), as shown in example (24). The possessor referent in these constructions is said to uniquely 'locate' the abstract entity with regard to its participants or circumstances. Other abstract referents may also be used in possessive constructions, especially noun phrases that refer to a person's more abstract attributes or social constructs, as shown in example (25). The cases of ABSTRACT possession are so far removed from the notion of OWNERSHIP that it may be dubious whether they constitute cases of possession at all. However, since notions similar to those presented in (25) are expressed in the same way as prototypical possession in many languages (Heine 1997: 36), I assume that they do constitute a peripheral subtype of possession. It is nevertheless important to note that some languages

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[1] Not to be confused with the so-called *genitivus temporis* or *genitivus partitivus* used in Polish and many other languages, as in *pożycz ołówka* (lend [me] pencil.GEN.PART), literally 'lend me a bit of pencil' with the meaning 'lend me a pencil for a while'.

employ strategies to express ABSTRACT possession that are not used for any other subdomains of possession (Stassen 2009: 21).

(24)　a.　　*the train's arrival*
　　　b.　　*Poland's invasion*
　　　c.　　*the prisoner's escape* (Taylor 1995: 204)

(25)　a.　　*her compassion / her sadness*
　　　b.　　*I don't have time*
　　　c.　　*I have a meeting*

　　　To sum up, I differentiate between the possessive relationships as presented in (26), where the first three are considered as prototypically possessive and the remaining ones as extensions of the prototype. The categorization is partially based on Kreyer (2003: 178). *PR* stands for *possessor*, *PM* stands for *possessum*. *Adj(PM)* stands for *adjective corresponding to PM* and *Verb(PM)* stands for *verb corresponding to PM*.

(26)　*Notions of possession*
　　　1.　OWNERSHIP (PR has/owns PM)
　　　　　Anne's house — Anne has a house

　　　2.　KINSHIP (PR is kin to PM)
　　　　　Anne's sister — Anne is kin to her sister

　　　3.　PART–WHOLE (PM is part of PR)
　　　　　Anne's hand — the hand is a part of Anne

　　　4.　SOCIAL ROLE (PR has a non-kin relationship to PM)
　　　　　Anne's boss — Anne has a boss

　　　5.　CONTROL (PR has PM at their disposal)
　　　　　Anne's office — Anne has the office at her disposal

　　　6.　AUTHOR (PR produces/writes/tells PM)
　　　　　Anne's letter — Anne wrote the letter

　　　7.　ABSTRACT possession (PR Verb(PM))
　　　　　Anne's advice — Anne advised

　　　8.　ATTRIBUTIVE possession (PR is Adj(PM))
　　　　　Anne's freedom — Anne is free

　　　9.　LOCATIVE possession (PM is located in PR)
　　　　　Stockholm's streets — the streets are located in Stockholm

　　　10. TEMPORAL possession (PM is set in PR)
　　　　　yesterday's newspaper — the newspaper is from yesterday

Figure 1 presents the possessive relations in a graph-like form, where the animacy of the possessor is added. The three prototypical relations are underscored. The PART–WHOLE relation as well as ATTRIBUTIVE possession and ABSTRACT possession are situated between human and inanimate possessors, as both types of possessors occur in these particular relations.
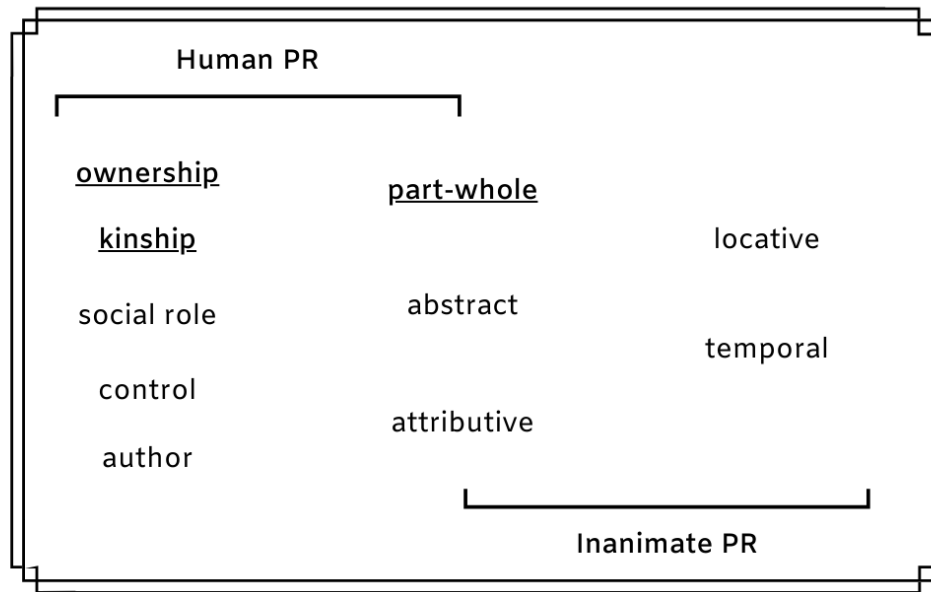
Figure 1. The relations of possession

This list of notions or relationships that fall under the general term of possession is arbitrary; other authors group the possessive relations in different ways. Heine (1997: 34–35; 2001: 312–313), for instance, proposes the following notions together with examples for predicative possession:

(27) a. physical possession (*I want to fill in this form; do you have a pen?*).
      b. temporary possession (*I have a car that I use to go to the office but it belongs to Judy*).
      c. permanent possession (*Judy has a car but I use it all the time*).
      d. inalienable possession (*I have blue eyes*).
      e. abstract possession (*He has no time/no mercy*).
      f. inanimate possession (*My study has three windows*).

Heine's list of possessive notions is designed with predicative possession in mind; however, the list captures the properties that are commonly thought of as belonging to the domain of possession in general. In the list of possessive notions in (26), the notion of CONTROL corresponds to Heine's physical and temporary possession, the notion of OWNERSHIP corresponds to permanent possession, whereas the notions of KINSHIP and PART–WHOLE

relationships are represented by inalienable possession. Inanimate possession in Heine's understanding corresponds to the PART–WHOLE relationship, as well as to the LOCATIVE and TEMPORAL relationships.

One of the fundamental and yet rarely stated properties of the possessive relation is that it is a free relation. This does not mean that any relation between entities may be possessive, but including freedom as a characteristic of possession enables us to differentiate between prototypical cases of possession and other constructions. The property of freedom of possessive relations is intricately connected to the different semantic notions of possession (Peters & Westerståhl 2013: 734; Westerståhl 2016: 232). Possessive expressions are fundamentally polysemous and may convey a number of different meanings, especially cases of attributive possession. Freedom of possession can be defined in the following way: every possessive NP can be used in a sentence where that NP's possessive relation is not provided semantically by the sentence itself, but rather by the context in which the sentence is used (Peters & Westerståhl 2013: 734). In other words, an NP such as *Anne's books* is inherently vague, as it may have many different readings depending on the context of use. In the most prototypical sense it may refer to the books that Anne owns, but it may also refer to the books that Anne has written, or the books that she is carrying with her at the moment, or the books that she uses to prop up her desk so that it stands straight. Such possessive relations arise from the context of use and not from the intrinsic semantic notions of possession. Even the use of relational nouns, in which the possessive relation is inscribed in the noun, does not preclude the non-prototypical readings. *Mary's sisters* may, for instance, refer to the sisters (of someone else) who were guests of Mary's. As Taylor (1995) and Langacker (1995) argue, a possessive expression is a particularly suitable device to locate a specific referent or, in other words, "uniquely identify an entity" (Taylor 1995: 203). For that reason possessive constructions, like in the examples above, can be used to identify a number of relations that deviate from the prototype of possession. Possessive expressions usually have a specific referent, which is retrievable not only through identifying the possessive relation itself, but also from the context of its use. To explain this feature of possessives, Langacker (1995: 58–60) introduces the reference-point model, which is based on the premise that speakers commonly invoke the conception of one referent in order to establish mental contact with another referent. The possessor thus functions as a reference point, or an anchor, for identifying the possessed entity. Since the possessor may own many different objects and the possessum usually refers to only one possessor (in accordance with one of Taylor's (1995) principles of prototypical possession), it is natural and more efficient to use possessors as a "mental address" (Langacker 1995: 59) for identifying the cluster of owned items. In the case of the three possessive notions that constitute a prototype according to Langacker, i.e. OWNERSHIP, KINSHIP and PART–WHOLE relationship, they have that status precisely because the possessor saliently and naturally lends itself to the referent-point function. Further, the reference-point model serves to explain the more peripheral uses of possessives, as in the earlier example of *Anne's books* and its many readings, where *Anne* serves as a reference point for a specific set of books in a specific context. Possessive expressions are thus open to multiple interpretations, but there is some evidence for the primacy of the prototypical possessive constructions. For Langacker (1995) it is the saliency and ubiquity of the human possessors and their inherent links to their kin and body-parts. For Taylor (1995) the primacy

of the prototypical notion of OWNERSHIP is proved by interrogatives to such NPs as *John's car*. The interrogative *'Whose car?'* "is not a request to the hearer to name some person who stands in some indeterminate relation to the car; the expression is a request to name the possessor (in the prototypical, or close to prototypical sense) of the car" (1995: 204). Even though the notions invoked by possessives are very strongly context-dependent, the core, prototypical meaning of possession often comes to the fore.

2.2 The sources of possession

Having introduced different subtypes of the concept of possession, it is now necessary to expand on the topic of other concepts or cognitive schemas that are related to possession. As mentioned at the beginning of this chapter, possession covers such a wide range of relations that it is at times difficult to draw a clear-cut line of demarcation between possession and other concepts, notably location, experience and existence. Herslund and Baron (2001: 4–5) argue that there are two basic schemas or role configurations that are of importance for the interpretation of possession: the Location – Argument and Experience – Stimulus configurations. The two schemas share a fundamental feature with possession, which is described as an underlying semantic role schema. For a case of possession to occur, a relationship between the possessor and the possessum must be in place. The same rule applies to concepts of location and experience. For an entity to become a *location*, there has to be another entity placed there, thus becoming the argument of the location. For example, in the sentence "*The book is on the table*, *the table* denotes only a place by virtue of the book being placed upon it" (Herslund & Baron 2001: 5). Similarly, for an entity to become an *experiencer*, there has to be a stimulus present. In the sentence *Kate felt the heat of the sun on her face*, *the heat* is a physical phenomenon that becomes a stimulus only after being perceived and reacted to by the experiencer. In this sense, according to Herslund and Baron (2001), the role schema present in possessive notions has more in common with Location or Experience schemas than with the Agent – Patient schema often ascribed to it. However, even though both concepts share some features with possession, it is only location (out of the two concepts) that may be one of the sources of possession. Heine (2001) notes that, in the case of predicative possession, the sources of evolution of possession, i.e. the cognitive schemas at its basis, include more schemas than simply location. Cross-linguistic studies have shown that possession, and specifically *have*-constructions, are commonly derived from the following schemas:

(28) *Formula*   *Source schema*
      X takes Y   Action
      Y is located at X   Location
      Y exists for/to X   Goal
      X's Y exists   Genitive
      X is with Y   Companion Schema
      As for X, Y exists   Topic Schema (Heine 2001: 316)

While the source schemas of Location and Companion correspond to the concept of location, the source schemas of Goal, Genitive and Topic correspond to the concept of existence.

2.2.1 Location and existence

Location, as a concept that is semantically the simplest, most primitive and concrete (Herslund & Baron 2001: 5), often lends itself as the basis of possession. Some authors conceive of possession not as an independent concept, but rather as a notion that can be reduced to location (among others J. Lyons 1967; 1968; E. V. Clark 1978; Freeze 1992; Baron 1997; Baron & Herslund 1997; Herslund & Baron 2001). A hypothesis that possessive constructions derive (both synchronically and diachronically) from locatives in many languages (J. Lyons 1967: 390) is referred to as the Location Hypothesis. One can argue that possession is a special form of location, as possession has some characteristics and features that differentiate it from location. For instance, the prototypical possessor is commonly human, whereas no such restrictions are placed on other locational relations. Similarly, while prototypical cases of possession are characterized by a long-term relation, there are no time restrictions on relations of location (Stassen 2009: 12).

The first argument in favour of the Location Hypothesis is that in some languages (e.g. Chinese, Hindi, Russian, Gaelic, Swahili) expressions used for possessive relations are parallel or even identical to those used for locational relations. This is illustrated by the following examples from French, Russian and Sango (a Niger-Kordofanian, Ubangian language).

(29)   FRENCH

    a.   Location:

       Le   *livre*   *est*   *sur*   *la*   *table*
       DEF   book   is   on   DEF   table
       'The book is on the table'

    b.   Possession:

       Le   *livre*   *est*   *à*   *Jean*
       DEF   book   is   to   Jean
       'The book is Jean's' (Herslund & Baron 2001: 6)

(30)   RUSSIAN

    a.   Location:

       на   стол-е   книга
       na   *stol-e*   *kniga*
       on   table-LOC   book.NOM
       'There is a book on the table' (lit. 'on table book')

    b.   Possession:

       У   меня   книга
       u   *menya*   *kniga*
       at   me.DAT   book.NOM
       'I have a book' (lit. 'at/by me book') (J. Lyons 1968: 500)

(31)   Sango

   a.   Location:

Mbi   ɛkɛ   na   l'hôpital

1SG   be   LOC   hospital

'I am in the hospital' (Samarin 1966: 179; cited in Stassen 2009: 13)

   b.   Possession:

Lo   ɛkɛ   na   bɔngɔ́

3SG   be   LOC   garment

'He has a garment' (lit. 'He is with a garment') (Samarin 1966: 95; cited in Stassen 2009: 13)

However, it is important to note that the structural similarity of locative and possessive structures is certainly not universal (Stassen 2009: 13). In English or Scandinavian languages, for example, predicative possession is expressed by the non-locational verb *have* (Swedish *ha*). Some authors seek an explanation for this by invoking differences between the deep-structure and the surface-structure. Lyons (1968) claims that the distinction between possessive and locational constructions, in languages where such distinction is present, is in fact a secondary surface-structure distinction based on the difference between animate and inanimate nouns. In translating locative sentences to English, many of them receive possessive meaning, and that decision is influenced by the animacy of the locative referent. If the locative referent is inanimate, as in the example *book + (be) table + 'locative'*, the sentence would be translated into an existential sentence: *The book is on the table*. However, if the locative referent is animate, as in the example *book + (be) John + 'locative'*, the sentence would be translated as a possessive: *John has the book*. The author goes as far as to claim that "*John has a book* is the surface-structure 'realization' of what might be represented as *A book (be) at-John*" (J. Lyons 1968: 500). Here, the author claims that the possessive *have* is derived from the deep-structure under the more general principle that animate referents, rather than inanimate ones, occur in (surface-)subject position, unless the inanimate referent is marked as 'topic' (J. Lyons 1967: 391). Clark (1970; 1978) also investigated the similarities of encoding of possession and location. Basing her research on a sample of 65 languages, she demonstrated that these notions are connected as regards their word order and verb patterns. Similarly to Lyons, Clark conceives of possessors as locations and adheres to the conception that possession in general can be described with the cognitive model [x BE.AT y], where x is the possessum (or theme) and y is the possessor, or in other words the location (see also D. L. Payne 2009: 109–112). Clark (1970: 3) also notes that the only factor distinguishing possession from location is the animacy of the 'place', i.e. it is the adding of the feature [+animate] to a locative phrase that transforms it into a possessive one. As regards the matter of possessors as locations and *have*-constructions as being only 'superficial', I agree with Stassen (2009: 14) and Heine (1997: 138–142) in that the arguments for such treatment of *have*-possessives are heavily theory-dependent. As Heine has shown cross-linguistically, *have*-constructions have their sources in a number of cognitive schemas, including Location, but also Action, Goal, Company, Topic and others, which cannot easily be reduced to location.

The second argument for the Location Hypothesis is connected to Benveniste's (1966) claim that HAVE is just an inverted BE. Typological studies on possession in general distinguish two types of languages. The so-called *habeo* languages have both HAVE and BE verbs at their disposal (they are also called HAVE/BE languages), whereas the so-called *est* languages use only the verb BE (hence BE languages). In the first type, which includes most Indo-European languages, HAVE is used to express possession and BE is used to express location. This is especially apparent in the case of animate possessors, as in example (32); however, in the case of inanimate partitives possessive and locational constructions are parallel, as in (33).

(32)   a.   *She has strong hands.*
       b.   **There are strong hands on her.*

(33)   a.   *The house has a roof on it.*
       b.   *There is a roof on the house. / The roof is on the house.*
            (Maciejewski 1996: 103)

In BE languages, on the other hand, the locative relation is central in possessive expressions, as in the examples from Finnish in (34), where a static (adessive or inessive) locative case is used for both animate and inanimate referents.

(34)   FINNISH
       a.   *Pekka-lla   on   auto*
            Pekka-ADE   be.3SG   car.NOM
            'Pekka has a car.' (lit. 'at Pekka is a car')

       b.   *Auto-ssa   on   uude-t   renkaa-t*
            car-INE   be.3SG new-NOM.PL   wheel-NOM.PL
            'The car has new wheels' (lit. 'at car are new wheels') (Mahieu 2013: 45)

In *habeo* languages HAVE and BE are at times interchangeable, as shown in the English examples above. The domains of the two verbs are thus not strictly separate. HAVE and BE constitute a continuum of sorts, with a possessive HAVE at one end and a locational BE at the other, where in between we find a relative freedom of transformations (Maciejewski 1996: 114). In that view, the claim that HAVE is an inverted BE merits some discussion. If that claim is true, then the passive of the *have*-construction should be equivalent to the *be*-construction, i.e. have an existential reading, as Herslund and Baron (2001: 6) observe. The passive of HAVE is a very rare phenomenon, but it does occur in Danish precisely with the existential meaning. The Danish verb *have* has a passive form *haves*, which occurs in restricted uses with the meaning 'be', 'exist', or 'be available', as in example (35) below. Norwegian also seems to have this type of *have*-construction at its disposal; see the example in (36).

(35)   DANISH
        Røget   fisk   hav-es.
        smoked   fish   have-PASS
        'Smoked fish for sale' (Herslund & Baron 2001: 6)

(36)   NORWEGIAN
        Fersk fisk   ha-s   på   lager
        fresh fish   have-PASS   on   stock
        'Fresh fish in stock' (Faarlund, Lie & Vannebo 1997: 514)

In Swedish, however, even though it is possible to use HAVE in passive form, the construction does not receive the existential reading, but is rather used in an impersonal construction with no referential subject present (see examples in (37)).

(37)   SWEDISH
        a.   *Ha-s   det   barn?*
              have-PASS   FORM.SBJ   children
              'Does one have children?' (Teleman, Hellberg & Andersson 2010c: 366)

        b.   *Det   bör   hava-s   i   åtanke [...]*
              FORM.SBJ   should   have-PASS   in   mind
              'One should have in mind [...]'[2]

The possessive verb *have* may then be used in a passive construction in Danish and Norwegian with an existential reading, but the scope of its use is very restricted and context-dependent. The passive constructions shown above seem to have more in common with location than possession, as the agentive prepositions used in extended Danish phrases in (38) below are locative prepositions.

(38)   DANISH
        a.   *Den   kvalitet   have-s   i   all-e   butikk-er.*
              DEM   quality   have-PASS   in   all-PL   shop-PL
              'That quality is found in all shops'

        b.   *Oplysning-er   have-s   hos   indehaver-en.*
              information-PL   have-PASS   at   owner-DEF
              'Information available from the owner' (Herslund & Baron 2001: 7)

In both Swedish and Norwegian a locative verb *finnas* 'be' is more commonly used in the same context. The use of the passive of HAVE is so restricted in the case of Scandinavian languages that it cannot be taken as a compelling argument for the Location Hypothesis.

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[2] Google search, https://sv-se.facebook.com/samfundet.sverige.israel/posts, accessed 30 Oct 2018.

The hypothesis that the concept of possession can be reduced to location may be further strengthened by the notion of the so-called Sub-Place found in *have*-constructions. As shown in example (39), it is possible to use prepositional phrases that specify the location of the possessum in the possessive construction.

(39)   a.   *The bank has a branch in Bristol.*
       b.   *Mary has a child on her lap.* (Herslund & Baron 2001: 8)

In both cases the possessum is in a possessive relation to the possessor and, at the same time, in a locative relation to a specified place. In this assumption, the notion of Sub-Place can only work if there is also a Place present, i.e. the subject of the possessive verb HAVE. Thus Herslund and Baron (2001: 8) assume that HAVE must be a locative verb which can be combined with a Sub-Place prepositional phrase. It is important to note, however, that this argument is applicable only to predicative possession.

A clear argument against the Location Hypothesis is the fact that many languages have distinct syntactic structures for marking possession versus location. The similarities of predicating these two notions are then certainly not universal. As Payne has shown, even if a single predicate is used for possessive and locative meanings, "there are additional required grammatical features, besides just the predicate morpheme, which distinguish the meanings" (2009: 114). This is shown in example (40) from Jakaltek below. The same copula root *ay* is used in both cases, but they require different constructions, which shows that possession is not the same as location in human cognition.

(40)   JAKALTEK
       a.   Location:
                Ay-c'oj   *ha*   *mam?*
                exist-DIR   your   father
                'Is your father here?'

       b.   Possession:
                Ay   *no'*   *hin*   *txitam.*
                exist   CL   my   pig
                'I have a pig.' (D. L. Payne 2009: 111)

Existence is another basic notion that, like location, has often been argued to be connected to possession (most notably J. Lyons 1967; 1968; E. V. Clark 1970; 1978). It is not a new observation that certain possessive structures may render an existential meaning, as is shown in example (41). This is not, however, sufficient evidence for the derivation of possession and existence from location, for which Lyons (1967; 1968) among others has argued.

(41)   a.   *We have kangaroos in Australia.*
       b.   *There are kangaroos in Australia.*

In her study on the Maa language (spoken in Tanzania and Kenya), Payne (2009) investigates the cognitive links between possession, location and existence on the basis of elicited examples and a corpus study. She demonstrates that there are two verbs in Maa whose possessor and locative roles do not overlap. The verb *tii* 'be at' has locational and existential uses, whereas the verb *ata* 'have' has possessive and existential uses (D. L. Payne 2009: 124–134). Locative and possessive constructions are then clearly distinct, but what the two verbs have in common is the existential reading possible for both constructions. This leads the author to claim that perhaps there are closer conceptual links between possession and existence, and between location and existence, than between possession and location (D. L. Payne 2009: 138). This, on the other hand, leads to a conclusion that in languages in which possession and location are expressed by the same construction, the cognitive connection between possession and location might be indirect, via their links to existence (McGregor 2009a: 4).

To conclude, the notion of location is without doubt deeply connected to possession, but I agree with Stassen (2009: 14) that it cannot possibly be seen as a sufficient template for the notion of possession. One indispensable 'ingredient' of the concept of possession, for which the Location Hypothesis does not account, is the semantic notion of CONTROL. As stated above, possession necessarily includes an asymmetric power relation, where one referent, the possessum, is controlled by another referent, the possessor. This cannot be reduced to spatial or temporal notions and it cannot be explained by the 'superficial' character of possessive verbs that may be seen as locative verbs in their deep-structure. I also agree with Payne (2009) that, while there is evidence for conceptual connections between possession and location, it does not imply that the two domains are conceptually identical. Location and existence, and to some degree experience, show important conceptual links to possession; it does not, however, follow that possession may be reduced to either or all of these conceptual schemas.

2.3 Predicative, attributive and external possession

Three types of possessive constructions are generally distinguished: attributive, predicative and external (Herslund & Baron 2001: 4; McGregor 2009a: 1). Both predicative and attributive possession can be described with reference to the prototypical possession as discussed in section 2.1. The main difference between predicative and attributive possession is that the possessive relation in the attributive possession is presupposed, as in *my credit card*, whereas in the predicative construction the relation is explicitly asserted by the possessive verb, as in *I have a credit card* (Heine 1997: 26). In external possession constructions the relation is not specified either within an NP or through a possessive verb, but rather at the level of clausal construction, as in *The door hit me in the face*.

2.3.1 Predicative possession
The term predicative possession is used to describe constructions in which the possessive relation is expressed by a predicate, often a possessive verb, such as *ha* 'have' in Swedish, as in the Swedish examples below.

(42) *Jan   har   grå-tt   hår*
      Jan   has   grey-N.ST   hair
      'Jan has grey hair' (own data)

(43) *Kung-en   av   Sverige   har   tre   barn*
      king-DEF   of   Sweden   has   three child.PL
      'The king of Sweden has three children' (own data)

Sentences of this type often indicate OWNERSHIP or temporary possession (CONTROL), as has been noted by Seiler (1977), Taylor (1989) and Stassen (2009: 26); however, cases of ABSTRACT possession are also very commonly expressed by predicative possession. Cross-linguistically, as Stassen (2009) has shown, predicative possession is not only limited to *have*-constructions. Other predicate constructions include:

– The locational possessive – a construction with some form of a verb roughly meaning 'to be' and with the possessum as a grammatical subject of the predicate. Its meaning can be rendered into English as: *At/to PR, (there) is/exists a PM*, where PR is the possessor and PM is the possessum. See example (44).

– The with-possessive – a construction with a verb meaning 'to be' and the possessor as the grammatical subject. It is a mirror version of the locational possessive and it can be rendered in English as: *PR is/exists with a PM*. See example (45).

– The topic possessive – a construction with a verb meaning 'to be'. Here the possessum is the grammatical subject, but the possessor is constructed as a sentence topic of the possessive. It can be rendered into English as: *(As for) PR, PM is/exists*. See example (46).

(44) CLASSICAL LATIN
      Est   mihi   liber
      be.3SG.PRS   1SG.DAT   book.NOM.SG
      'I have a book' (Benveniste 1966: 116; cited in Stassen 2009: 51)

(45) AMELE (Papuan, Madang)
      Ija   sigin   ca
      1SG   knife   with
      'I have a knife' (Roberts 1987: 81; cited in Stassen 2009: 56)

(46) CAMBODIAN (Austro-Asiatic, Mon-Khmer)
      Pu   mien   lan
      Uncle   exist   car
      'Uncle has a car' (Jacob 1968: 46; cited in Stassen 2009: 59)

An important distinction in the case of predicative possession can be seen between the so-called *have*-constructions and *belong*-constructions. In *have*-constructions the possessor is the topic and grammatical subject, whereas in *belong*-constructions the possessum is constructed as the topic and subject; see the example in (47) below.

(47)   a.   *Have*-construction:
                Peter has a car.

        b.   *Belong*-construction:
                The car is Peter's.   or   *The car belongs to Peter.* (Heine 1997: 29)

The distinction between these two constructions is to some extent pragmatically motivated, as their use may depend on which referent is topicalized in the discourse. The distinction is also clearly semantic. *Have*-constructions are more polysemous and they are said to express possession (with all its semantic sub-types) including OWNERSHIP, whereas *belong*-constructions are said to express exclusively OWNERSHIP (Heine 1997: 32). *The car belongs to Mary* renders OWNERSHIP as its primary meaning, whereas *Mary has a car* is more open to different readings depending on the context of utterance; it may render ABSTRACT or CONTROL possession as well as OWNERSHIP. Herslund and Baron (2001: 11) observe that since *belong*-construction is marked vis-à-vis the *have*-construction, it is only natural that *belong* is more restricted and precise in its meaning.

2.3.2 Attributive possession: (in)alienability

The term attributive possession, otherwise termed adnominal or nominal possession, is used for possessive constructions in which the possessor and the possessum form a nominal phrase, as in the Swedish examples below.

(48)   ***Erik-s mamma***   *heter*   *Maria*
        Erik-S mum   is.called   Maria
        'Erik's mum is called Maria' (own data)

(49)   ***Kung-en***   ***av***   ***Sverige***   *bor*   *i*   *Stockholm*
        king-DEF   of   Sweden   live   in   Stockholm
        'The king of Sweden lives in Stockholm' (own data)

(50)   ***min***   ***hund*** *är* *tre* *år*   *gammal*
        1SG.POSS   dog is   three year.PL   old
        'My dog is three years old' (own data)

As the domain of attributive possession is the focus of the present study, a detailed overview of constructions used in the world's languages follows in section 2.4. For now, let us turn to the distinction between alienable and inalienable possession. Even though (in)alienability may be expressed with predicative constructions, such asserted expressions as *I have a hand*, *I have a father* do not convey much information and are often described as ungrammatical

(Heine 1997: 21). Thus, (in)alienability becomes especially salient in the case of attributive possession.

As stated above, attributive possession is the preferred domain for expressing presupposed or 'inherent' possession, as opposed to asserted or 'established' possession (Seiler 1983). Adnominal possessive constructions are thus the preferred means to express inherently possessed entities, i.e. those expressed through relational nouns, in which the possessive relation is already contained in the noun itself. Relational nouns, i.e. nouns denoting kinship relations or social roles, are one of the two main groups of nouns most often described as inalienable nouns. The other group is body-part nouns. These two groups are often distinguished with possessive marking distinct from the marking used for non-relational, or alienable, nouns. The term inalienable possession is used to describe a possessive relation that is inherent or indissoluble, or in other words a possessive relation that cannot be easily terminated. Cases of inalienable possession most often include a human possessor referent and a kinship term or body-part noun as a possessum referent. However, the treatment of certain referent groups as inalienable is not homogeneous cross-linguistically, as it is culturally dependent. Some of the entities often treated as inalienable in different languages include: relational spatial concepts (e.g. 'top' or 'front'), objects closely linked to a person, such as weapons, tools or clothes, and inanimate parts of other objects, i.e. PART–WHOLE relations (Chappell & McGregor 1996a: 3). Example (51), from the Eastern Pomo language, shows a different treatment of kin referents, which take head-marking in the possessive, from the treatment of non-relational referents, which take dependent-marking (in this case genitive).

(51)   EASTERN POMO
    a.   Inalienable:
        wí-bayle
        1SG-husband
        'my husband'

    b.   Alienable:
        wá-x   *šá·ri*
        my-GEN   basket
        'my basket' (Nichols 1988: 566)

Example (52a) from Acholi, a Western Nilotic language spoken in Northern Uganda, illustrates that body parts are expressed in possessive constructions by juxtaposing the possessor and the possessum. Alienable possession requires, however, a possessive morpheme *pa*, which can be viewed as a marked genitive construction (Bavin 1996: 848).

(52)   ACHOLI
    a.   Inalienable:
        cing   *dano*
        hand   person
        'person's hand' (Bavin 1996: 844)

b. Alienable:

cam   pa   dano
food   POSS   people
'people's food' (Bavin 1996: 847)

What is characteristic for inalienable possession is that the possessor typically exercises little or no control over the possessum. In the case of the KINSHIP relation, one is born into the kin relation and there is no control over the choice of kin. In the case of body parts, they constitute an integral, biological part of a living entity.

As regards the characteristics of inalienable possession and its marking, two recurrent tendencies have been noted. Firstly, Nichols (1988: 562) observed that nouns that take inalienable possession virtually always form a closed, often small set, whereas nouns that take alienable possession form an open, infinite set. Inalienable possession is thus the marked member of the opposition alienable–inalienable. In her study on languages of North America, Nichols finds that kinship terms and body-part nouns are most often represented in the closed set of inalienable nouns. Secondly, the marking for inalienable nouns is usually shorter and morphologically simpler than that used for alienable nouns (Nichols 1988: 564). While there are examples of languages in which there are no apparent differences in length or complexity of possessive marking, there are no examples in Nichols' study of a reverse tendency: where alienable possession would be marked by shorter, less complex constructions. Several explanations for this observation have been proposed, one of the most notable being the iconic motivation put forward by Haiman (1983). Iconicity in language, in general, is based on the assumption that grammar and its complexity are essentially built up of a small number of general, cognitively transparent iconic principles (Givón 1995b: 49). One of the rules of iconicity proposed by Givón is the *proximity principle*, which entails the following: the closer two entities are semantically, functionally or cognitively, the more likely they are to be placed adjacent to each other at the code level, i.e. lexically or syntactically (1985: 202; 1995b: 51). Iconicity in the case of inalienable possession involves the matching of conceptual and spatial distance (i.e. the observable distance between lexical or morphological items). According to the proximity principle, the lack of marking or shorter marking for inalienable nouns is connected to the iconically short distance between the possessor and the possessum. In the case of the PART–WHOLE relationship (including body-part nouns) the iconic distance between two entities in a possessive construction is virtually non-existent. Thus Haiman (1983: 793) claims that the spatial distance between the lexical elements that constitute the possessor and the possessum in an inalienable construction will never be greater than the lexical distance between entities in an alienable construction, as the latter are separated by greater iconic distance. Another of Givón's principles of iconicity, however, can be said to prevail in the explanation of shorter marking (or lack thereof) for inalienably possessed nouns, namely the *quantity principle*. This states that "the more *mental effort* is expended in processing a topic-NP (i.e. in establishing its referential identity in discourse), the more *coding material* is used to represent it in language" (Givón 1985: 197). In other words, if the topic or a referent is less predictable or accessible in the discourse, it needs more explicit marking to facilitate processing of information. That principle corresponds to the *economic motivation* as proposed by Haspelmath with regard to article–possessor complementarity (1999) and with regard to

inalienable nouns (2008). A referent in an inalienable construction, such as a body-part noun or a kin noun, occurs clearly more often as the possessum than various other alienable referents, due to its referential nature. A *mother* is always understood as somebody's mother and a *hand* is always conceived of as a part of a particular human. For that reason, it is fairly predictable that an inalienable noun will occur in a possessive expression. According to the quantity principle and the economic motivation as described above, what is already known or highly predictable does not need to be explicitly stated. Inalienable nouns thus receive shorter or non-explicit marking because they are highly predictable as the possessum in the possessive NP for semantic and pragmatic reasons. The examples in (53) and (54) show the shorter and less complex marking of inalienable nouns in Hua (a Papuan language) and Choctaw (a Native American language).

(53) Hua
     a.   Alienable:
          dgaiʔ   *fu*
          1SG.POSS   pig
          'my pig'

     b.   Inalienable:
          d-zaʔ
          my-arm
          'my arm' (Haiman 1983: 793)

(54) Choctaw
     a.   Alienable:
          chĩ-chokka
          2SG.AL-house
          'your house'

     b.   Inalienable:
          chi-shki
          2SG.INAL-mother
          'your mother' (Haspelmath 2008: 7)

Givón (1985: 198) claims that the proximity principle (corresponding to iconic motivation) and quantity principle (corresponding to economic motivation) do not exclude each other, but are in fact very closely linked. Haspelmath (2008), however, argues for the prominence of economic motivation, as the iconic motivation in the understanding of Haiman presupposes that any marking creating a larger distance between the possessor and the possessum has to occur between the two NPs. This is clearly not always the case, as the possessive marking may occur to the left or right of both the possessor and the possessum. In an example like (55) from Puluwat (a Micronesian language) we can no longer talk about linguistic or spatial distance between the possessor and the possessum, as the marking does not occur between the

two phrases. The economic motivation is thus the most salient explanation for the shorter or zero-marking of inalienable possession.

(55) PULUWAT
    a.   Alienable:
        ***nay**-iy*   *hamwol*
        POSS-1SG   chief
        'my chief'

    b.   Inalienable:
        pay-iy
        hand-1SG
        'my hand' (Haspelmath 2008: 5)

Possessive splits involving inalienable possession are well-attested in Australian languages (among others Crowley 1983; Evans 1996), languages of Asia (among others Chappell 1996; Tsunoda 1996), languages of North America (Nichols 1988; Thompson 1996) and South America (Brugman & Macaulay 1986; Kockelman 2009), as well as languages of Africa (Claudi & Serzisko 1985; Bavin 1996). For further references see the rich *Bibliography on Inalienability* by Chappell and McGregor (1996b: 891–911). There is also a growing body of literature regarding inalienability in the languages of Europe (cf. Stolz et al. 2008). Clear inalienability splits, i.e. situations where inalienable nouns always require or favour different possessive constructions, are quite rare in Indo-European languages. Nonetheless, distinct marking of inalienable possession does occur, for instance, in Romance languages, among others Romanian (Manoliu-Manea 1996) and Spanish (Winters 2006), and in Germanic languages, such as Dutch (Burridge 1996), German (Neumann 1996), Norwegian (Lødrup 1999; 2014), Danish (Heltoft 2001; Togeby 2001) and Swedish (Piotrowska & Skrzypek 2017). In both Romance and Germanic languages the distinct treatment of body-part nouns involves the use of the definite form instead of a possessive pronoun; compare the examples below from Spanish, Romanian and Swedish.

(56) SPANISH
    Susana   *levantó*   *la*   *mano*
    Susana   raised   DEF   hand
    'Susana raised her hand' (Winters 2006: 152)

(57) ROMANIAN
    Petru *ridică* *mâna*
    Petru   raises   hand.DEF
    'Petru is raising his hand' (Manoliu-Manea 1996: 725)

(58)   SWEDISH

    Peter   tvättar   ansikte-t

    Peter   washes   face-DEF

    'Peter is washing his face' (Piotrowska & Skrzypek 2017: 30)

      While inalienable possession denotes an enduring and indissoluble relationship between entities, the complementary notion of alienable possession refers to a variety of less permanent or inherent relations, such as OWNERSHIP (socially or economically conferred) or CONTROL (Chappell & McGregor 1996a: 4). In the case of alienable possession, the relationship is also understood as long-term or enduring, in accordance with Taylor's (1989; 1995) prototype; however, the alienable relation is not indissoluble as "the relation continues to exist only as long as the controlling agency in the relation chooses to maintain it" (Stassen 2009: 15). In this sense it becomes clear that alienable possession is intuitively regarded as the prototypical case of possession. As shown in the examples above, alienable possession is the member of the (in)alienability opposition that usually receives overt morphological marking.

2.3.3 External possession

External possession is the third type of possessive construction, and may be seen as somehow "in between" attributive and predicative possession. The term external possession, or possessor ascension, is used to describe constructions in which the possessive relation is not specified within the NP (the possessor and the possessum do not belong to one NP) and is not specified by a possessive verb either. External possession constructions (often called EPC) are specified at the level of clausal construction with the possessor as external to the possessum, as in the following examples.

(59)   SWEDISH

    Jan   kysste Maria i   munn-en.

    Jan   kissed Maria in   mouth-DEF

    'Jan kissed Maria on the lips.' (own data)

(60)   SWEDISH

    Vind-en   slog   mig   i   ansikte-t

    wind-DEF   hit   me   in   face-DEF

    'The wind hit me in the face.' (own data)

External possession constructions share with predicative possession the feature that the relation between the possessor and the possessum is conveyed by a verb, but it also shares with attributive possession the feature that the possessive relation is presupposed and not asserted (Herslund & Baron 2001: 15). The possessor is thus 'promoted' as a primary clause member instead of the possessum, hence the terms *possessor ascension* or *possessor raising* are also used in the context of external possession. Not all possessive relations may be realized with external possession constructions. The main restriction is that the possessive relation must be construed as a PART–WHOLE relationship, that is, the possessum referent must be expressed through an inalienable noun. The second restriction is that the verb must be

dynamic, although this constraint varies cross-linguistically (Herslund & Baron 2001: 15). From the two constraints it follows that the possessor is in some way affected by the action conveyed by the verb. Since any action done to a body part is by necessity done to the whole person, external possession always has a benefactive or malefactive effect on the possessor referent, as can be seen in the examples above. Herslund and Baron (2001: 15–16) note that in most Indo-European languages external possession constructions are limited to body-part nouns; however, there are some external possession constructions attested in which the possessum is a kinship noun. In Balkan languages, such as Romanian and Serbo-Croat, as well as in Polish, the external possessor is expressed in the dative (and in Polish the possessum is expressed in the instrumental case).

(61)   ROMANIAN
       El   mi-e   frate.
       3SG.M 1SG.DAT-is   brother
       'He is my brother.' (Herslund & Baron 2001: 16)

(62)   SERBO-CROAT
       On   mi   je   brat.
       3SG.M 1SG.DAT   is   brother
       'He is my brother.' (Herslund & Baron 2001: 16)

(63)   POLISH
       On   jest   mi   brat-em.
       3SG.M is   1SG.DAT   brother-INSTR
       'He is a brother to me.' (own data)

The presence of the instrumental case in the Polish example slightly changes the meaning of the possessive expression. The kinship noun *brat* 'brother' is used in the external possessive construction only with a metaphorical reading, which could be rendered into English as '*He is like a brother to me*'. The simple kinship reading, as in the Serbo-Croat example, is not possible in Polish, where the external possession does not denote a KINSHIP relation in the strict sense. The examples above also show that the verb is not necessarily dynamic in external possession constructions that involve KINSHIP relations.

Since in many languages the external possessor is realized with the dative case, which is the Experiencer case, the question has been raised whether the external possessor is actually the possessor or whether it is in fact the experiencer (Herslund & Baron 2001: 18). Those authors argue that the semantics of external possession vary, according to language, between the location domain and the experience domain, giving examples from French, where both locative and experience constructions are possible, and Danish, where only locative meaning seems to be current. I would argue, however, that even in external possession constructions that convey the locative meaning, as in example (64), the possessor still remains the experiencer of the action specified by the verb.

(64)   DANISH
       Hun   vred   arm-en   på   ham
       3SG.F   twisted   arm-DEF   on   3SG.M
       'She twisted his arm.' (Herslund & Baron 2001: 19)

An argument against the experiencer interpretation is, undoubtedly, the possibility of external possession constructions involving KINSHIP relation, as shown in examples (61–62). The possessor cannot be seen as the experiencer in such constructions, neither is the locative interpretation available in these examples. Further, the external possession construction is possible with sensory verbs (see examples below from French and Polish), which is another argument against the experiencer interpretation as the prevailing reading. Herslund and Baron (2001: 18) claim that such utterances may be seen as warnings or mild reproaches, which enables the experiencer reading, as the possessor is threatened by something potentially disagreeable. This interpretation seems quite dubious, however.

(65)   FRENCH
       On   te   voit   le   dos.
       INDF   2SG.DAT   see.3SG   DEF   back
       'One can see your back.' (Herslund & Baron 2001: 18)

(66)   POLISH
       Widać   ci   plecy.
       see.INF   2SG.DAT   back
       'One can see your back.' (own data)

I would, nonetheless, agree with Herslund and Baron (2001: 20) that external possession constructions are predominantly used for textual presentation, that is, to highlight the possessor, rather than for lexical classification. The construction thus serves the function of presenting the entity as not only the possessor, but also as a participant in certain events, e.g. the experiencer. These two roles certainly do not exclude each other.

2.4 Attributive possessive constructions in the world's languages

The following overview of attributive possessive constructions used in various languages is based on the comprehensive presentation in Dryer (2007), and partly on studies of adnominal possession in languages of Europe by Koptjevskaja-Tamm (2002b; 2003). The abundance of meanings associated with possession, as shown in section 2.1, is not necessarily reflected in the adnominal construction types used to express these meanings. While some languages use different constructions for specific types of possessive relations, as the examples for inalienability splits in section 2.3 have shown, most languages make use of one and the same construction for a variety of possessive meanings (Koptjevskaja-Tamm 2002b: 142). At the same time, languages seldom have only one construction type for expressing possession. In many languages in which possessive splits do not occur, it is thus unclear what conditions the choice between different constructions. Firstly, I will look at various genitive

constructions; secondly, I will describe the use of possessive pronouns cross-linguistically. The next subsection will be devoted to non-referential possessives. The section will be concluded with a description of additional, less common constructions.

2.4.1 Genitive constructions

The term *genitive* is used for possessive constructions in which the possessum occurs with another noun phrase that denotes the possessor, as in *Stockholm's citizens* or *the citizens of Stockholm*. Many languages have more than one genitive construction. English for instance has two genitival constructions: one with a prenominal possessor and the clitic *'s* and one with a postnominal possessor and the preposition *of*. The two constructions are often called *s-genitive* and *of-genitive* respectively (e.g. Heine 1997; Rosenbach 2002; 2005; 2008; Hinrichs & Szmrecsanyi 2007). Similarly, the mainland Scandinavian languages (Swedish, Danish and Norwegian) have two genitival constructions at their disposal: the s-genitive and the prepositional construction (see Chapter 3 for a detailed description).

There are considerable cross-linguistic differences in the marking of possession within the genitive construction. One of the differences involves the distinction between dependent- and head-marking within a possessive NP: some languages mark the possessor, whereas other languages mark the possessum. For instance, in example (67) from the Hua language, it is the possessor that is marked and occurs in the genitive case.

(67) HUA
    de-ma'   *fu*
    man-GEN   pig
    'the man's pig' (Dryer 2007: 178)

An example for the other type of construction is presented in (68), where the possessor is unmarked, but the possessum is marked with a possessive prefix.

(68) NAVAJO
    'ashkii bi-deezhí
    boy   3SG-younger.sister
    'the boy's younger sister' (Nichols 1988: 559)

The two types of affixes and the terminology used to describe them should not be confused. The *genitive affix* in (67) is used to indicate the possessor in the possessive NP and is a type of dependent-marking, since the possessor is a grammatical dependent of the head noun (the possessum) (Dryer 2007: 179). In contrast, *possessive affixes*, as in example (68), are a form of head-marking, since they occur on head nouns. Possessive affixes often agree with the possessor as regards person, number and at times gender, but that is not always the case. In the Haida language (spoken off the west coast of Canada) the possessum occurs with the suffix *-g̲a*, regardless of the person or number of the possessor, as in (69).

(69) HAIDA

    a.   *Wā́nəgən   gi̇́t-ga*
            Wanagan   son-POSS
            'Wanagan's son'

    b.   *dị̄   g̣ṓñ-g̣a*
            1SG   father-POSS
            'my father' (Dryer 2007: 179)

The third type of genitival construction, involving neither genitive suffix nor possessive suffix, is the previously mentioned construction in which the possessor is marked with an adposition in the form of a prepositional phrase, as in the English *the citizens of Stockholm*. Many languages make use of an adposition, as the examples from French and Rumu below illustrate. Since the adposition forms a constituent with the possessor and has the same function as the genitive affix, namely indicating the possessor in a possessive NP, the adposition is another form of dependent-marking.

(70) FRENCH
    le   pays   de   chacun
    DEF   country   of   everyone
    'the country of everyone' (Heine 1997: 152)

(71) RUMU
    [hei   akö   pa]   mate
    [word   that   GEN]   meaning
    'the meaning of that word' (Dryer 2007: 179)

Dryer points out, however, that not every word that comes between the possessor and the possessum can be seen as an adposition (for examples see Dryer 2007: 180) and that an adposition does not necessarily need to be placed between the two constituents, although that is the norm. In example (72) from Moru, a Central Sudanic language, the adposition occurs outside of the two NPs, on the right of the possessor.

(72) MORU
    drị̣   [ts^{w}ɛ́   rɔ́]
    head   [tree   of]
    'the head (i.e. top) of the tree' (Dryer 2007: 181)

Another common type of genitive construction is one with no marking whatsoever, where the possessor and the possessum are simply juxtaposed. Languages in which juxtaposition is used to mark possession differ as regards the word order of the constituents. In example (73) from Welsh the order is possessum–possessor, whereas example (74) from Nivkh (spoken in Eastern Siberia) exhibits the reverse order (possessor–possessum).

(73) WELSH
car   y   meddyg
car   DEF   doctor
'the doctor's car' (Koptjevskaja-Tamm 2003: 649)

(74) NIVKH
osk̦   au
hare   voice
'the voice of the hare' (Dryer 2007: 181)

In some languages both the possessor and the possessum bear possessive markers, in a construction that Nichols (1988: 559) calls double-marking. One such construction from Haida in (75) uses both a possessive affix on the possessum and a possessive pronoun as the possessor. In Turkish, in example (76), both a genitive suffix on the possessor and a possessive suffix on the possessum are used.

(75) HAIDA
Luā'-i   lā'ga
canoe-POSS   his
'his canoe' (Nichols 1988: 559)

(76) TURKISH
Ahmed-in   oğl-u
Ahmed-GEN   son-3SG.POSS
'Ahmed's son' (Dryer 2007: 181)

A further type of analytic genitive construction is the use of linking pronouns, i.e. the use of a possessive pronoun between the possessor and the possessum. The possessive pronoun usually agrees with the number and gender of the possessor (see example (77) from West Frisian), although some languages have agreement with the possessum (as in the examples from Bernese and Norwegian below).

(77) WEST FRISIAN
Jetze   syn   hoed
Jetze   3SG.POSS.C   hat.C
'Jetze's hat' (Koptjevskaja-Tamm 2003: 668)

(78) BERNESE
em   Peeter sịnị   Mueter
DEF.M.OBL.SG Peeter 3SG.POSS.F   mother.F
'Peeter's mother' (Koptjevskaja-Tamm 2002b: 143)

(79)   NORWEGIAN

Per / Maria	*si-t*	*hus*
Per / Maria	REFL.POSS-N.SG	house.N

'Per's / Maria's house' (Koptjevskaja-Tamm 2003: 669)

To sum up, a simplified overview of genitive constructions in the world's languages may be presented as follows.

(80)   1. Synthetic constructions:
      – Dependent-marking
      – Head-marking
      – Double-marking
  2. Juxtaposition
  3. Analytic constructions:
      – Adposition (use of prepositions)
      – Linking pronouns

2.4.2 Pronominal possessors

In a small minority of languages the construction with pronominal possessors does not differ from the genitive construction. For instance, in Khmer, the language of Cambodia, a simple juxtaposition is possible with both nominal and pronominal possessors.

(81)   KHMER

  a. *tù:*   *ta:*
      cupboard   grandfather
      'grandfather's cupboard'

  b. *phtèəh khɲom*
      house 1SG
      'my house' (Dryer 2007: 182)

Note that in the examples above the pronoun used is not a distinct possessive pronoun, but a general first person pronoun. In languages with some form of dependent-marking, for example genitive case or a genitive-like clitic, there is commonly a distinct morphological class of possessive pronouns. Indo-European languages generally have distinct possessive pronouns, as in English *my/your/her/his/their house*. Constructions with possessive pronouns often involve a different word order from that used with genitive constructions. Compare the examples from French below.

(82)   FRENCH

  a. *le*   *livre* *de*   *Jean*
      DEF   book of   Jean
      'Jean's book'

b.   *mon   livre*
     1SG.POSS   book
     'my book' (Dryer 2007: 183)

An interesting difference between the nominal and pronominal possessive structures presents itself in languages that employ pronouns as possessive affixes on the possessum. In example (83) from Kairiru, a Malayo-Polynesian language, the possessive pronoun is attached to the possessum in the form of a possessive suffix. This, however, is possible in Kairiru with inalienable nouns only.

(83)   KAIRIRU
       Nur   yacal   qajuo-ny
       Nur   he   cousin-3SG.POSS
       'Nur's cousin' (Heine 1997: 148)

Many languages have a special set of reflexive possessive pronouns to distinguish a co-referential pronominal possessor from a non-referential pronominal possessor (Manzelli 1990: 68). Compare examples in (84) from Polish, where the sentence in (a) with a co-referential pronoun denotes somebody else's car, whereas the sentence in (b) with a reflexive possessive pronoun refers back to the subject.

(84)   POLISH
       a.   *Jan   ma   jego   samochód*
            Jan   has   3SG.POSS.M   car
            'Jan has his car.' (i.e. somebody else's)

       b.   *Jan   ma   swój   samochód*
            Jan   has   REFL.POSS.M.SG   car
            'Jan has his (own) car.' (own data)

The Scandinavian languages have also retained the distinction between regular and reflexive possessive pronouns; for a detailed description see Chapter 3.

2.4.3 Non-referential genitives

Some languages distinguish between constructions with a referential possessor and with a non-referential genitive. A non-referential relation between two nouns occurs when a nominal dependent is used not for identifying the referent of the head noun, but rather for classifying, describing or qualifying the class of entities that the nominal dependent belongs to or denotes (Koptjevskaja-Tamm 2002b: 154). Compare the examples below from English, where the non-referential relation is expressed by juxtaposition of two nouns.

(85)   a.   *John likes that **deer's antlers**.*
       b.   *John likes **deer antlers**.* (Dryer 2007: 190)

While the noun phrase in (85a) is referential and identifies a specific referent, the noun phrase in (85b) is non-referential and only classifies the type of antlers in a generic way. Another example of different treatment of the two nominal structures is from Roviana, an Oceanic language, where the referential possessive NP requires a possessive suffix on the head noun, whereas the non-referential NP involves juxtaposition.

(86)   ROVIANA
       a.   *mamalaengi-na*   *[barikaleqe*   *hoi]*
             voice-3SG.POSS   [woman   that]
             'that woman's voice'

       b.   *mamalaengi*   *barikaleqe*
             voice   woman
             'a woman's voice' / 'a female voice' (Dryer 2007: 191)

Many languages, however, use the same genitive constructions to express both possession in the strict sense and other non-referential relations. Both types of nominal dependents (i.e. the possessor and the non-referential genitive) "characterize entities via their relations to other entities" (Koptjevskaja-Tamm 2002b: 154). The relations expressed by non-referential possessives include DURATION (e.g. an apprenticeship of three months), MATERIAL (e.g. a stone bridge), QUANTITY (e.g. a ship of a thousand tons), AGE (e.g. a boy of seven years) and many others. Even though the example in (85) shows that English employs different constructions for referential and non-referential possessives, the use of the clitic *'s* is also possible for non-anchoring relations, as in the examples below.

(87)   a.   *a red woman's hat*
       b.   *children's room* (own data)

Similarly, in Lithuanian the use of the genitive case is possible in both referential and non-referential contexts.

(88)   LITHUANIAN
       a.   *mokytojo*   *namas*
             teacher.GEN   name
             'the teacher's name'

       b.   *duonos*   *peilis*
             bread.GEN   knife
             'a bread knife' (Koptjevskaja-Tamm 2002b: 155)

In Swedish the principal means used to express non-referential dependents is compounding, as in example (89b). Note, however, that compounds in the Mainland Scandinavian languages are not restricted to the non-anchoring use, as they may also be used with a referential

dependent, as in example (90). A more detailed overview of the use of compounding in semi-possessive contexts in Danish and Swedish follows in Chapter 3.

(89)   SWEDISH
     a.   *barn-et-s*   *rum*
           child-DEF-S   room
           'the child's room'

     b.   *barnrumm-et*
           child.room-DEF
           'the children's room' (own data)

(90)   SWEDISH
     Palmemord-et
     Palme.murder-DEF
     'Palme's murder' (own data; see e.g. Koptjevskaja-Tamm 2013)

2.4.4 Other constructions

Other adnominal constructions used for expressing possession include possessive adjectives, found for instance in Slavic languages, and dative or instrumental constructions, found in a variety of languages.

     A possessive adjective is derived from a noun or a proper name and can be used attributively to express possession, as in (91) and (92).

(91)   UPPER SORBIAN (West Slavic)
     wučerj-owe   *blido*
     teacher-ADJ.NOM.SG.N   table.NOM.SG.N
     'teacher's table' (Corbett 1987: 301)

(92)   POLISH
     Franciszk-owy   *zegarek*
     Franciszek-ADJ.NOM.SG.M   watch.NOM.SG.M
     'Franciszek's watch' (Skrzypek 2016: 229–230)

Possessive adjectives agree with the possessum in the same features as regular adjectives, i.e. in number, gender and case. Corbett (1987: 301) also points out that in Upper Sorbian possessive adjectives usually precede the head, just as regular adjectives do, whereas the genitive construction typically follows the head. An important constraint on forming possessive adjectives is that the possessor must be human (or occasionally animal), as well as singular and specific (Corbett 1987: 301). The derivational means of marking possession in Slavic languages, i.e. possessive adjectives, has long competed with the inflectional means, i.e. the genitive case. In Russian or Polish for instance, the genitive is much more common, leaving possessive adjectives restricted in usage (in Russian) or virtually non-existent in present-day speech (in Polish). What is interesting, however, is that even in languages that

lack possessive adjectives, like Germanic languages, it is possible to derive them from proper names in certain contexts. Skrzypek (2016) shows, for instance, that Swedish allows a limited use of adjectives whose interpretation may vary between possessive and classifying adjectives, as in (93).

(93) SWEDISH
      den   Newton-ska   mekanik-en
      DEF   Newton-ADJ.WK   mechanic-DEF
      'Newtonian mechanics' (Skrzypek 2016: 236)

Further, it is not uncommon that some languages use the dative case in possessive constructions instead of the genitive, or that both cases are used with differences in meaning. Stassen (2009) gives a Latin example, reproduced in (94), to show that the two possessives differ in topicality and discourse function. The dative case is used to introduce a new referent in the possessum, whereas in the construction with the genitive case the possessum is understood as the topic, that is, as given information.

(94) LATIN
      a. *Est   mihi   liber*
          be.2SG.PRS   1SG.DAT   book.NOM.SG
          'I have a book'

      b. *Gallia   est   Ariovisti*
          Gallia.NOM   be.3SG.PRS   Ariovistus.GEN
          'Gallia belongs to Ariovistus' (Stassen 2009: 29)

Especially in languages that use locational possessives, as described in section 2.3.1, the possessor is often marked with cases that denote static location, such as the adessive or inessive case in the Finnish example in (34) (see section 2.2.1), or cases that denote dynamic, goal-oriented action, like the dative (Stassen 2009: 50). Moreover, as illustrated in section 2.3.3, dative case is usually used in external possessive constructions. As regards attributive uses of the dative, in some German dialects the possessive dative construction is used, in which the possessor in the dative is accompanied by a possessive pronoun preceding the possessum, as in the examples below.

(95) PENNSYLVANIA GERMAN
      Des   is   em   Dadi   sei(n)   Aarmschtuul
      this   is   DEF.DAT   Grandpa.DAT   his   armchair
      'This is Grandpa's armchair.' (Burridge 1990: 41)

(96) GERMAN (colloquial use)
      Das   ist   dem   Mann   sein   Fahrrad
      that   is   DEF.DAT   man.DAT   his   bicycle
      'That is the man's bicycle.' (lit. 'to the man his bicycle') (Burridge 1990: 41)

The colloquial dative possessive as illustrated in (95) and (96) is only possible if the possessor is animate. This constraint can be explained by the fact that the construction evolved out of an original personal dative, which could involve only animate referents, as it was connected with the experiencer schema (Burridge 1990: 44).

2.5 Definiteness of possessive constructions

In reference to definiteness in possessive constructions, specifically the definiteness of the possessum, two claims have been proposed: 1) possessive NPs are strictly definite (e.g. C. Lyons 1999; Rosenbach 2002) or 2) possessive NPs are not necessarily definite, as they do not assume uniqueness or exhaustibility (e.g. Willemse, Davidse & Heyvaert 2009).

In more traditional works, authors usually agree that a possessive NP is a definite NP by default. Christopher Lyons (1999) notes that, at least in English, possessives render the possessum definite, as the examples in (97) and their paraphrases clearly show.

(97)   a.   *John's house – the house of John*
        b.   *that man next door's car – the car belonging to that man next door*
            (C. Lyons 1999: 23)

Genitive constructions in which the possessor is indefinite also render a definite possessum NP, e.g. *a king's daughter* can be paraphrased as *the daughter of a king*. It may be argued, however, that the possessive NP *a king's daughter* can be analysed not as a referential NP (i.e. *[a king's] daughter*), but rather as a non-referential, qualifying NP (i.e. *a [king's daughter]*). The difference of the grammatical relations expressed by these two examples can be otherwise described as the difference between a *determiner* and a *modifier*. In a referential possessive NP, like *John's house*, the possessor functions as a determiner, whereas in a non-referential NP, like *a [king's daughter]* or *the [driver's seat]*, the possessor functions as a modifier (Rosenbach 2002: 14). The possessor in a genitive construction paradigmatically occupies the same slot as other determiners, such as articles or demonstratives. This is easily exemplified by cases of article–possessor complementarity, where the possessor cannot co-occur with other determiners. This is the case in English and other Germanic languages, like Swedish or Danish.

(98)   ENGLISH
        *my book – *the my book – *my the book*

(99)   SWEDISH
        a.   *min*   *bok*
            1SG.POSS   book
            'my book'

        b.   **den*   *min*   *bok*
            DEF   1SG.POSS   book
            **'the my book'

c.   **min*   *bok-en*
      1SG.POSS   book-DEF
      **'my the book'

In Norwegian, however, possessive pronouns are usually placed after the head noun, and therefore do not render the possessum definite. In this case the definite form of the possessum is obligatory; see example (100).

(100)   NORWEGIAN
      bok-en   *min*
      book-DEF   1SG.POSS
      'my book' (lit. 'the book my')

Some languages do not show any signs of article–possessor complementarity, as possessives do not impose a definite reading on the possessum. See the well-known examples in (101) from Italian and the examples in (102) from Basque.

(101)   ITALIAN
      a.   *il*   *mio*   *libro*
          DEF   1SG.POSS   book
          'my book' (lit. 'the my book')

      b.   *un*   *mio*   *libro*
          INDF   1SG.POSS   book
          'a book of mine' (lit. 'a my book') (C. Lyons 1999: 24)

(102)   BASQUE
      a.   *amaren*   *diru-a*
          mother.GEN   money-ART
          'mother's money'

      b.   *zuen*   *liburu-ak*
          you.GEN   book-ART.PL
          'your books' (Haspelmath 1999: 228)

A further interesting example comes from the Scandinavian dialect Karleby, spoken in Finland, in which there are no constraints on the co-occurrence of possessors and articles irrespective of their word order. In Swedish and Norwegian, which are closest to Karleby, such constructions as those presented in (103b) and (104b) are ungrammatical.

(103)   KARLEBY
      a.   *hest-e*   *mín*
          horse-DEF   1SG.POSS
          'my horse' (lit. 'the horse my')

b.   *mín*   *hest-e*
     1SG.POSS   horse-DEF
     'my horse'   (lit. 'my the horse') (Vangsnes 1996: 2)

(104) KARLEBY

a.   *he*   *grann* *hest-e*   *mín*
     DEF   fine   horse-DEF   1SG.POSS
     'my fine horse' (lit. 'the fine the horse my')

b.   *mín*   *he*   *grann* *hest-e*
     1SG.POSS   DEF   fine   horse-DEF
     'my fine horse' (lit. 'my the fine the horse') (Vangsnes 1996: 2)

In languages without article–possessor complementarity, therefore, there may not be any question of possessives rendering a definite reading on the possessum. The difference in this case has traditionally been assigned to the difference between determiner-genitive languages, like English or Swedish, and adjectival-genitive languages like Italian or Basque (C. Lyons 1999: 24). Haspelmath (1999) shows, however, that even in languages where the definite article is a suffix and does not occupy the same slot as the possessive pronouns, like in the Swedish example in (99), article–possessor complementarity is still present. He proposes an economic motivation instead: the definite article in possessive NPs can be omitted in certain languages because possessed NPs have a very high chance of being definite for semantic and pragmatic reasons (1999: 227). The fact that some languages still employ the article together with possessives does not weaken this analysis, as performance economy is not the only motivating factor. Noun phrases also need to be explicit, and explicitness is one of the factors often in conflict with performance economy. Languages like Italian seem to favour explicitness over economy in producing NPs (Haspelmath 1999: 233–234).

As regards the second claim, namely that possessives are not strictly definite, Haspelmath (1999: 231) states that possessive NPs are not necessarily definite, even though they are highly likely to be. Counterexamples to the claim of definiteness include phrases like those in (105), in which the possessum is clearly indefinite.

(105) a.   *my friend – a friend of mine*
       b.   *my book – a book of mine / a book that belongs to me*

In their study on the reference-point construction and its function in discourse, Willemse, Davidse, and Heyvaert (2009) show more corpus examples of possessive NPs that alternate with an indefinite NP, as in example (106). *Greta Garbo's knickers* alternates with *a pair of knickers of Greta Garbo*. In this case one cannot claim that possessives in general encode definiteness, at least in English. The authors also note that possessives do not assume uniqueness or exhaustibility, as the example in (107) shows. In the same way, the possessive *my sister* does not assume that the possessor has only one sister, nor does the phrase *my books* assume exhaustibility in the sense of *all the books that I own*.

(106) *On Monday, Christie's in New York is to sell Greta Garbo's knickers.*
(Willemse, Davidse & Heyvaert 2009: 16)

(107) *Most of Jeremy Paxman's ties don't go with his shirts.*
(Willemse, Davidse & Heyvaert 2009: 25)

It is clear, then, that even though possessive NPs are usually definite in English, they may also be indefinite. This leads to a conclusion that possessives do not code definiteness in a way that the determiner-genitive approach would suggest. The economy motivation approach does account for the article–possessor complementarity phenomenon in certain languages, but it still does not answer the question whether or not possessives, specifically those rendered through genitive constructions, are intrinsically definite.

In an attempt to answer that question, Willemse, Davidse, and Heyvaert (2009) apply the discourse analysis perspective to English genitive constructions using the reference-point analysis as a starting point. Langacker (1995), in describing his reference-point model (see also section 2.1) states that the possessor is overwhelmingly definite (either explicitly or implicitly, e.g. in the case of pronouns and proper names), which makes it suitable for the reference-point function. Through a definite possessor, the speaker and the hearer already have mental contact with the reference point, which in turn allows them to achieve mental contact with the reference of the possessum. In that author's view, the definiteness of the possessum is an automatic consequence of both definiteness and possession being characterized on the basis of mental contact (Langacker 1995: 63). As we have seen in the examples above, this is not always the case, even when the possessor is definite. Further, Taylor (1996) develops Langacker's (1995) model and formulates several predictions with regard to the possessor and the possessum referents and their givenness or newness in the discourse. Taylor argues that the reference-point entity or anchor, i.e. the possessor, has to be sufficiently salient in order to fulfil its function of identifying the possessum. From that it follows that the possessum is necessarily the less accessible referent of the two, since "it would be perverse indeed to invoke a less accessible entity to aid the identification of a more accessible entity" (Taylor 1996: 210). This reasoning leads the author to predict that the possessor and the possessum are thoroughly distinct as regards their discourse properties. While the possessor has overwhelmingly 'given' status in the discourse (since given referents are cognitively more accessible than new referents), the possessum overwhelmingly often introduces new, previously unnamed referents into the discourse (Taylor 1996: 217). This line of reasoning, however, is in conflict with the premises of definiteness. If the main function of the possessum were to introduce new referents into the discourse, it would follow that the possessum must be indefinite, which is not the case in most examples. In fact, the results of the corpus study of English prenominal possessives conducted by Willemse, Davidse, and Heyvaert (2009) show that the possessum is rarely a completely newly introduced referent. The possessum occurs in the discourse as a newly introduced referent, i.e. a referent that has not been mentioned in the preceding discourse and is not inferable from the context of the discourse, in 28% out of 400 instances of possessive NPs (Willemse, Davidse & Heyvaert 2009: 45). The majority of possessum referents are either co-referential with another NP in the preceding discourse or inferable from previous discourse (usually through associative

anaphora, e.g. *a house – the owner*) or are otherwise anchored to another element in preceding discourse (e.g. kinship relations, inalienable possession). These types of previously explicitly or implicitly introduced possessum referents make up ca. 68% of all the possessive NPs in those authors' material (2009: 29–42). It is thus shown that the discourse status of the possessum cannot be reduced to the binary opposition of 'given' or 'new' (or 'definite' or 'indefinite' in the information-status perspective) and, further, that the discourse status of the possessum is not coded by the status of the possessor. The internal relation between the possessor and the possessum is thus not the only factor influencing the information status of the possessum, as it largely depends on the specific discourse context. The possessor and the possessum have different roles and discourse properties and "the reference-point mechanism may be employed in various ways, adapted to specific discourse purposes" (Willemse, Davidse & Heyvaert 2009: 47).

In the next chapter, I present in detail the possessive constructions used in present-day Danish and Swedish. I will discuss constructions found in the standard varieties of these languages that will later be explored in the empirical studies (Chapters 5 and 6), as well as more marginal constructions found in dialects and regional varieties of Danish and Swedish.

Possessive constructions in present-day Danish and Swedish

This chapter provides an overview of the attributive possessive constructions used in present-day Danish and Swedish. Firstly and most importantly, I present the attributive possessive expressions used in Standard Danish and Swedish (section 3.1), which are the focus of the empirical studies presented in Chapters 5 and 6. In section 3.2 I discuss several other possessive expressions used in the dialects of Danish and Swedish. The chapter is concluded with a concise description of possessive constructions used in the other Nordic languages, namely Norwegian, Icelandic and Faroese.

3.1 Standard Danish and Swedish

There are several attributive constructions used to express possession shared by Standard Danish and Swedish, as presented in Table 2 together with examples in Swedish.

Table 2. Attributive possessive constructions in Danish and Swedish

No.	Possessive construction	Swedish example	Translation to English
1.	the s-genitive	*Lenas hund*	'Lena's dog'
2.	the prepositional construction	*taket på huset*	'the roof of the house'
3.	regular possessive pronouns	*min mamma*	'my mum'
4.	reflexive possessive pronouns	*Han tog av sin jacka.*	'He took off his jacket.'
5.	noun–noun compounds	*en Mozartsonat*	'a Mozart sonata' (cf. Koptjevskaja-Tamm 2013: 254)
6.	possessive adjectives	*strindbergiansk kvinnosyn*	'Strindberg's view of women' (cf. Skrzypek 2016)
7.	definite NPs	*Hon höjde handen*.	'She raised her hand.' lit. 'She raised the hand.'

The first four constructions presented in Table 2, i.e. the s-genitive, prepositional constructions and pronouns, both regular and reflexive, are investigated in the empirical studies presented in this dissertation. For that reason, the overview will focus on these four constructions and the previous research concerning them. The other constructions — compounds, possessive adjectives and the use of the definite article — will also be described, albeit in a less detailed manner, as they are either not exclusively used for expressions of possession (compounds and definite NPs) or are infrequent and not particularly productive (possessive adjectives).

3.1.1 The s-genitive

As regards previous research on Danish and Swedish possessive constructions, the largest body of work concerns the s-genitive construction. Much has been written about its historical development from the genitive case (Delsing 1991; 2001; Norde 1997; 2013 for Swedish; Perridon 2013 for Danish) and its morphological status (Herslund 2001; Börjars 2003; Norde 2006; 2009; 2011; Piotrowska 2017; 2018a). The construction is also attested in English and Norwegian. The history and morphological status of the English s-genitive have been widely discussed (Allen 1997; 2003; J. Payne 2009; Anderson 2013; Börjars et al. 2013).

The s-genitive is characterized by the clitic-like ending *-s* which is attached to the possessor, as in (108) and (109). The construction can thus be represented as [PR-*s* PM], where PR stands for the possessor, PM for the possessum, and *-s* for the possessive marker *-s*.

(108)   Swedish

  mann-en-s   *hund*

  man-DEF-S   dog

  'the man's dog'

(109)   Danish

  land-et-s   *græns-er*

  country-DEF-S border-PL

  'the country's borders'

The primary function of the s-genitive is the determinative function. A possessive attribute in the genitive is most often semantically definite both in Swedish (Teleman, Hellberg & Andersson 2010b: 25) and in Danish (Heltoft & Hansen 2011: 276–277). The determinative genitive construction cannot co-occur with any pre- or postposed articles, as shown in (110a) and (110b). The s-genitive requires a following adjective to be in a definite, i.e. weak, form, as shown in (110c).

(110)   a.   **den* /**en*   *Anna-s*   *bok*

     DEF   /INDF   Anna-S   book

     'Anna's book'

   b.   **Anna-s*   *bok-en*

     Anna-S   book-DEF

     'Anna's book' (intended meaning)

   c.   *Anna-s*   *ny-a*   *bok*

     Anna-S   new-WK   book

     'Anna's new book'

It follows that the genitive construction renders the possessum phrase referent definite, and by the same token unique within the pragmatic set of features shared by the speaker and the listener (Koptjevskaja-Tamm 2002a: 517). In example (110c) it is then assumed that both

participants of the discourse situation are referring to a unique, specific book. The condition of uniqueness, however, does not necessarily need to be fulfilled in every s-genitive construction. In example (111), assuming that Anna has two or more brothers, there is no unique reference, only a specific one. There is also no assumption that the listener can identify the referent without any further context. Nevertheless, the use of the s-genitive is grammatical and usual in such contexts.

(111)   *Jag   har   träffat Anna-s   bror.*
          I   have   met   Anna-S   brother
          'I have met Anna's brother.'

The s-genitive construction, although primarily determinative, may also be used in non-determiner, descriptive possessives. Non-determiner genitives may co-occur with articles, as they do not render the possessum phrase referent definite, as in the Swedish examples in (112) and the Danish examples in (113).

(112)   SWEDISH
        a.   *en   plikt-en-s   man*
             INDF   duty-DEF-S   man
             'a man of duty'

        b.   *en   sex   timm-ar-s   resa*
             INDF   six   hour-PL-S   travel
             'a six-hour travel'

        c.   *en   helvete-s   oordning*
             INDF   hell-S   disorder
             'a hell of a mess' (Koptjevskaja-Tamm 2002a: 516)

(113)   DANISH
        a.   *den   Handling-en-s Mand han   er*
             DEF   action-DEF-S man   3SG.M is
             'the man of action that he is' (Hansen 1967: 225)

        b.   *ti   kilo-s   overvægt*
             two   kilo.PL-S   overweight
             'overweight of two kilos' (Heltoft & Hansen 2011: 448–449)

        c.   *kvæl dog   den   satan-s kat!*
             stifle but   DEF   satan-S cat!
             'but stifle that cat of Satan!' (Heltoft & Hansen 2011: 1153)

The head of the whole NP with non-determiner genitives is usually an indefinite singular noun, although with swear genitives definite NPs are also frequent. The non-determiner

genitive itself is usually definite, singular or plural, as illustrated in the examples above. Koptjevskaja-Tamm (2002a) differentiates between three types of non-determiner genitives in Swedish: inserted genitives, which function as descriptive attributes of the head (112a and 113a); measure genitives which most often include nouns indicating time, measure or weight (112b and 113b); and swear genitives, most often restricted to words of a theological nature (112c and 113c) (Koptjevskaja-Tamm 2002a: 519). All three types of non-determiner genitives are also found in Danish, as the examples in (113) illustrate. However, what Koptjevskaja-Tamm (2002a) calls swear genitives, the authors of *Grammatik over det Danske Sprog* 'Grammar of the Danish language' (Heltoft & Hansen 2011: 1152–1153) analyse in terms of adjectival exclamations.

As mentioned before, the s-genitive construction developed from one of the endings of the genitive case, which was productive in Old Norse (800–1200) and to an extent in Old Danish (1250–1500) and Old Swedish (1225–1550). Danish and Swedish formed a dialectal continuum in mediaeval times, and so in describing the development of the s-genitive the whole East Norse region (Danish and Swedish) is of importance. In the Old Norse case system the case endings for nominative, accusative, dative and genitive were realized differently depending on the number, gender and stem of the noun. That involved an abundance of case endings and an occasional syncretism of forms, which according to Wessén (1941: 147) was one of the reasons for the gradual reduction of the case system in Swedish. Incidentally, the genitive ending used for masculine and neuter singular nouns with a-stems, i.e. the ending *-s*, was the only case ending which was not homonymous with any other case endings in Old Norse. By around 1250, when the Danish and Swedish dialects began going their separate ways, in the western and central parts of Denmark (Jutland, Fyn, Sealand) the case system had already collapsed and all unstressed vowel endings were reduced to schwa or lost entirely (Perridon 2013: 135). In the eastern parts of Denmark at the time (Scania, Halland, Blekinge, which are now provinces of Sweden), the case system was still productive, although the nominative and the accusative were no longer formally distinct. Moving further north, in what was then Sweden, the case system was still fully productive (Perridon 2013: 135). In the gradual flattening and eventual loss of case system in Swedish, the formal distinction between the nominative and the accusative was lost first, just as in the Danish parts of the dialectal continuum, as the syncretism of forms for these two cases was the most prominent (Wessén 1941: 138; Mørck 2005: 1130). The dative case was productive somewhat longer; specifically definite and plural endings were still in use around 1500 in Sweden (Wessén 1941: 142). As regards the genitive, the spread of the ending *-s* to nouns which originally used a different genitival ending had already begun during the Runic period of both Danish and Swedish (800–1225). The ending *-s* would then attach to nouns in the nominative or accusative, as in (114), which could easily be reinterpreted as a base form of the noun, since they had no specific ending as the case system was breaking down (Perridon 2013:138). In the example in (114) *father* 'father' is an r-stem noun with the regular genitive case form *föður*, while *sunæ* 'son' is a u-stem noun with the older genitive form *sunar*. This type of *-s* ending, which was already beginning to function as a semi-independent element at that time, was referred to by Norde (1997) as the secondary *-s*. It would also attach to already inflected forms, such as the older genitive case endings of definite feminine nouns, as in (115), proving that the older case endings had lost their genitive function by that point.

(114) | *iac* | *døpæ* | *thec* | *i* | *father-s* | *nafn* | *oc* | *sun-s* |
| 1SG | baptize | 2SG.ACC | in | father-S | name | and | son-S |

'I baptize you in the name of father and son' (Perridon 2013: 137)

(115) a. *jord-enna-s*
earth-DEF.GEN-S
'the earth's'

b. *menniski-onna-s*
human-DEF.GEN-S
'the human's' (Norde 1997: 125)

In instances of definite nouns with the spreading ending *-s* we often encounter the so-called double inflection, where both the noun and the suffixed article bear the ending *-s*, as in (116). During the expansion of the ending *-s* we also observe that concordial case, i.e. case markings on demonstratives, articles, pronouns and adjectives as well as on the noun in a phrase, as in (117a), gave way to single left-edge marking, as in (117b).

(116) *land-z-æn-s*
country-S-DEF-S
'the country's' (Perridon 2013: 138)

(117) a. | *tin-s* | *brodher-s* | *hustru* |
| 2SG.POSS-S | brother-S | wife |

'your brother's wife' (Norde 1997: 139)

b. | *utan* | *min* | *fadher-s* | *wiliu* |
| without | 1SG.POSS | father-S | will |

'without my father's consent' (Norde 1997: 138)

The ending *-s* gradually took over from all of the other endings, including those of feminine and neuter nouns, singular and plural, as well as weak nouns. As mentioned, the ending *-s* regularly attached to previously inflected forms of nouns in Old Danish and Swedish, and concordial case gave way to single marking, making the ending *-s* quite an autonomous element already at that stage. What is more, the present-day s-genitive functions as a phrase marker attached to the end of an NP, which is not necessarily a noun, but may be a postmodifier (see examples in 118 and 119). All this points to the conclusion that *-s* ceased to be a case marker and transformed into a clitic-like element. This development took place in both Danish and Swedish, although as mentioned, the process began somewhat earlier in Danish.

(118) DANISH

oplevels-er	*som*	*forandrer*	**den**	**man**	**elsker-'s**	**psyke**
experience-PL	that	change	DEF	man	loves-S	psyche

fuldstændigt
completely

'experiences that completely change [the person one loves]' psyche' (Perridon 2013: 142)

(119) SWEDISH

du	*måste*	*börja*	*handla*	*för*	**människ-or-na**	**runtom**
2SG	must	start	act	for	person-PL-DEF.PL	around

dig-s	**skull**
2SG-S	sake

'you have to start acting for [the people around you]'s sake' (Piotrowska 2017: 67)

Researchers in general agree that the s-genitive in Swedish, Danish, Norwegian, and English is no longer a productive case ending. On the one hand, there are a number of scholars who classify the s-genitive as a clitic. In her detailed studies, Norde (1997; 2006) argues that, even though the Swedish s-genitive shows some divergence from a fully productive clitic as defined by Zwicky and Pullum's (1983) well-known criteria, it can still be classified as a clitic. This line of reasoning is confirmed in a study on group genitive in present-day Swedish (Piotrowska 2018a). Among researchers of the English s-genitive, Allen (1997; 2003) and Anderson (2013) both claim that it should be classified as a special clitic, i.e. an element operating on full syntactic phrases rather than individual nouns. On the other hand, not everyone agrees that the s-genitive is a fully functioning clitic. Börjars (2003) argues that the simple dichotomy between affix and clitic is not nearly sufficient to describe the development of the Swedish s-genitive, as the differences between affixes and clitics should be conceived of as a continuum. The s-genitive would then fall somewhere between an affix and a clitic on that continuum. Börjars (2003: 138) calls it a phrasal affix, i.e. an element which does function on a phrase level, but nonetheless shows some morpho-phonological interactions with its host, which is a typical trait of affixes. Similarly, Zwicky (1987) and Payne (2009) argue that the English s-genitive is rather an edge affix than a clitic, as it is governed by some morphological and phonological constraints typical of affixes.

As I have argued extensively (Piotrowska 2017; 2018a) for the treatment of the Swedish s-genitive as a clitic, I will treat it as such throughout this dissertation. The terms *clitic* and *clitic-like element* will be used interchangeably.

3.1.2 The prepositional construction

The use of prepositional phrases that express possession is well established in Romance and Germanic languages. Possessive constructions with a preposition have completely superseded the use of morphological genitival constructions in Romance, while in Germanic they remain one of the options for marking possession (Sleeman & Perridon 2011: 15). The prepositional construction includes the possessor phrase, which is linked to the head noun (i.e. the

possessum phrase) by means of a preposition, usually with a reduced or bleached meaning. The construction can be represented as [PM *prep* PR], in which *prep* stands for the preposition. In this dissertation I use the short form PP for the construction with prepositional phrases.

English and Dutch each developed and grammaticalized a specific possessive preposition, respectively *of* and *van*. In Danish and Swedish, however, various spatial prepositions are used in possessive constructions depending on the semantic relations they are expressing, e.g. *av* 'of', *på* 'on', *till* 'to', *i* 'in', *efter* 'after', *med* 'with', etc., as in the Swedish examples in (120). No specific preposition is grammaticalized to the same degree as in English or Dutch.

(120) a.   *pris-et*   *på*   *vara-n*
             price-DEF   on   product-DEF
             'the price of the product' (Teleman, Hellberg & Andersson 2010a: 712)

      b.   *invånar-na*   *i*   *Stockholm*
             inhabitant-DEF.PL   in   Stockholm
             'Stockholm's inhabitants' (Norde 1997: 52)

In Table 3 I present an overview of Swedish and Danish prepositions that are used in possessive constructions. The overview is based on *The Swedish Academy Grammar* (Teleman, Hellberg & Andersson 2010b: 93–108; 2010a: 712–715), as well as on Norde (1997: 52) and Hansen (1967: 231–234), with examples from Swedish and Danish online corpora.[3] For more examples see also Perridon (1989: 74).

Table 3. Prepositions used in possessive contexts in Danish and Swedish

No.	Prepositions SV / DA	Examples
1.	av / af	DA: *periferien af europæisk politik* 'the periphery of European politics'
2.	för / for	SV: *ordföranden för det socialdemokratiska partiet* 'the chairman of the social democratic party'
3.	på	DA: *priserne på huse* 'the prices of houses'
4.	i	SV: *ratten i bilen* 'the wheel of the car'
5.	till / til	DA: *forfatteren til dette kapitel* 'the author of this chapter'
6.	med	SV: *meningen med livet* 'the meaning of life'
7.	från / fra	DA: *røg fra alle de cigaretter* 'smoke of all the cigarettes'
8.	efter	SV: *Det enda spåret efter vår katts sjukdom…* 'The only sign of our cat's sickness…'
9.	hos	DA: *egenskaber hos dyr og planter* 'properties of animals and plants'
10.	över / over	SV: *en bild över organisk produktion i USA* 'a picture of organic production in the USA'

It is clear from the table that there is a large variety of relations that may be expressed with possessive prepositional phrases in Swedish and Danish. Some examples that include

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[3] Swedish corpus: *Språkbanken, Sociala medier*, https://spraakbanken.gu.se/, accessed 28 Jul 2019.
Danish corpus: *KorpusDK*, https://ordnet.dk/korpusdk, accessed 28 Jul 2019.

animate possessors express such relations as AUTHOR (example 5 in the table), SOCIAL ROLE (example 2) and ATTRIBUTIVE possession (example 9). The remaining examples in Table 3 include inanimate possessors in a PART–WHOLE relationship (examples 1 and 4), with ATTRIBUTIVE possession (examples 3 and 6), LOCATIVE possession (example 7), and more ABSTRACT relations (examples 8 and 10). Hammarberg and Koptjevskaja-Tamm (2003: 138; cf. Koptjevskaja-Tamm 2013: 255) point out that the relations of OWNERSHIP and DISPOSAL, which overlap with the relation of CONTROL used in this dissertation (see section 2.1), cannot usually be expressed with the use of prepositional phrases in Swedish. Relations of KINSHIP and PART–WHOLE relations including body part nouns may, however, be readily expressed with prepositions, as in (121). Prepositional phrases are thus certainly not limited to uses with inanimate possessors in Swedish, although these are more frequent, as the results in Chapter 6 will show.

(121) a.   *son-en*   *till*   *kung-en*
            son-DEF   to   king-DEF
            'the son of the king'

       b.   *kind-er-na*   *på*   *pojk-en*
            cheek-PL-DEF.PL   on   boy-DEF
            'the cheeks of the boy'

As regards Danish, Hansen (1967: 222–223) gives examples of KINSHIP relations which can be expressed with either the s-genitive or prepositional phrases (*N.N.s broder* 'N.N.'s brother' — *broderen til N.N.* 'the brother of N.N.'), but he gives no examples of OWNERSHIP or PART–WHOLE relationships with body part nouns expressed with the use of prepositions. The majority of the examples of possessive PPs that the author lists include either ATTRIBUTIVE possession or ABSTRACT possession (Hansen 1967: 222–235). This may imply that Danish is less likely to use prepositional phrases with body part nouns than Swedish is; however, more recent research on this subject is lacking for Danish. It may be hoped that the studies presented in Chapters 5 and 6 will provide some new data and results on this topic.

Not all of the prepositions presented in Table 3 are equally frequent. Norde (1997: 52), quoting data from Pitkänen (1979), mentions that the most frequently used prepositions *av* 'of', *för* 'for', *på* 'on', *i* 'in' and *till* 'to' make up around 95% of possessive PP constructions. The prepositions *i* 'in', *på* 'on', *hos* 'at/with', *med* 'with', *till* 'to', *för* 'for' and *over* 'over' are used when the semantic relation between the possessor and the possessum in the spatial sense is that of 'location in/on/at/with' or 'direction to'. The prepositions *av* 'of', *från* 'from' and *efter* 'after' cannot be used in such contexts, as they require the spatial sense of 'direction from' (Hammarberg & Koptjevskaja-Tamm 2003: 140). In some cases of PART–WHOLE relations, both the preposition *av* 'of' and prepositions from the other group may be used, as in (122), thus giving prominence either to the partitive or to the locative meaning. *Av* 'of' tends to be preferred in contexts of partiality and quantification, as well as for marking the objects of deverbal nouns in ABSTRACT possessive expressions, as in (123).

(122) *en   avdelning   av   /   i   bolag-et*
      INDF   division   of   /   in   company-DEF
      'a division of/in the company' (Hammarberg & Koptjevskaja-Tamm 2003: 140).

(123) *nedrustning-en   av   försvar-et*
      disarmament-DEF   of   defence-DEF
      'the disarmament of the defence' (own data)

The use of possessive PPs in Danish and Swedish may be particularly important in those rare cases when the possessum phrase referent is indefinite. Such examples as *ett fönster på huset* 'a window of the house' cannot be rendered in the s-genitive without being ambiguous. Similarly, there seems to be a consensus that indefinite inanimate possessors are more often rendered in PPs constructions than in the s-genitive (cf. Hammarberg & Koptjevskaja-Tamm 2003: 142); for more on this, see the study of genitive variation in Chapter 6.

As mentioned in Chapter 2, relations between two entities are often very vague, and possessive prepositional phrases are perfect examples of such vagueness. Some researchers may not agree that the phrases presented in Table 3 are examples of possession. I define possession in the broadest terms possible: as a relation between a possessor and a possessum such that the possessor referent exerts some control over the possessum referent and/or that the two entities are in near physical proximity with each other (see section 2.1). Based on that definition and on the semantic notions of possession as presented in (26) in section 2.1, I will treat examples of prepositional phrases as presented in Table 3 as possessive. Taylor (1995: 110) defines the meaning of prepositions in the following way: "Prepositions, in their spatial sense, serve to locate spatially one entity with reference to another." The same can be claimed about possessive constructions in general, as they all entail a reference point through which an entity is located, or as Togeby (2001: 47) phrases it: "[…] a reference point through which some item of information is accessible to the mind."

As regards previous research on possessive PPs in Danish or Swedish, the most comprehensive description, to my knowledge, is given by Hammarberg and Koptjevskaja-Tamm (2003). They describe in detail the typology and semantic relations expressed in possessive PPs in Swedish; special attention is also given to the differences in the prepositions used for possessive constructions. Further, there are some publications that only mention the possibility of using prepositions in possessive constructions, without going into much detail (cf. Norde 1997; Koptjevskaja-Tamm 2013 for Swedish; Sørensen 2001; Togeby 2001 for Danish). The study in Piotrowska (2021) on the variation between the s-genitive and PP constructions in present-day Swedish, which is presented in an extended form in this dissertation, provides some new data in this area.

3.1.3 Regular and reflexive possessive pronouns

Possessive pronouns in both Danish and Swedish are prenominal; the construction can be represented as [*pron* PM]. In Tables 4 and 5 the regular possessive pronouns of Swedish and Danish are presented.

Table 4. Swedish regular possessive pronouns

	Singular			Plural	
1ˢᵗ person	2ⁿᵈ person	3ʳᵈ person	1ˢᵗ person	2ⁿᵈ person	3ʳᵈ person
min (PM: C SG)[4]	*din* (PM: C SG)	*hans* (PR: M)	*vår* (PM: C SG)	*er* (PM: C SG)	*deras* (PR: PL)
mitt (PM: N SG)	*ditt* (PM: N SG)	*hennes* (PR: F)	*vårt* (PM: N SG)	*ert* (PM: N SG)	
mina (PM: PL)	*dina* (PM: PL)	*dess* (PR: N)	*våra* (PM: PL)	*era* (PM: PL)	

Table 5. Danish regular possessive pronouns

	Singular			Plural	
1ˢᵗ person	2ⁿᵈ person	3ʳᵈ person	1ˢᵗ person	2ⁿᵈ person	3ʳᵈ person
min (PM: C SG)	*din* (PM: C SG)	*hans* (PR: M)	*vor/vores*	*jer/jeres*	*deres* (PR: PL)
mit (PM: N SG)	*dit* (PM: N SG)	*hendes* (PR: F)	(PM: C SG)	(PM: C SG)	
mine (PM: PL)	*dine* (PM: PL)	*dens*	*vort/vores*	*jert/jeres*	
		(PR: N; PM: C)	(PM: N SG)	(PM: N SG)	
		dets	*vore/vores*	*jere/jeres*	
		(PR: N; PM: N)	(PM: PL)	(PM: PL)	

First and second person pronouns mostly agree with the gender and number of the possessum phrase. The third person pronouns, both singular and plural, mostly do not agree with the gender and number of the possessum, but do agree with the gender of the possessor phrase referent. The exception is that Danish has retained two separate neuter pronouns in the third person singular that agree with the gender of the possessum phrase (*dens* 'its.C' and *dets* 'its.N'); in Swedish they have merged into one (*dess* 'its'). As regards possessive pronouns for the first and second person plural, Danish provides two options. The pronouns *vores* 'our' and *jeres* 'your' are stylistically neutral in present-day Danish. The older forms, which agree with the gender and number of the possessum phrase, have a higher register and are used rarely and only in very formal written language (Heltoft & Hansen 2011: 552). First and second person possessive pronouns have a specific form and are not considered to be genitive forms of the personal pronouns (respectively *jag* 'I', *du* 'you.SG', *vi* 'we', *ni* 'you.PL' in Swedish). Third person possessive pronouns are considered to be genitive forms of the personal pronouns (*han – hans* 'he – his', *hun – hendes* 'she – hers', *den/det – dens/dets* 'it – its' in Danish) (Heltoft & Hansen 2011: 551–552). All possessive pronouns are descendants of the Old Norse pronouns.

Reflexive possessive pronouns agree with the possessum as regards gender and number. Since they are bound by the subject in the third person, there are only three forms. In Swedish the reflexive possessive pronouns are *sin/sitt/sina* for common gender, neutral gender and plural referents respectively. The corresponding forms in Danish are *sin/sit/sine*. The difference between regular and reflexive pronouns is illustrated in the Danish examples in (124).

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[4] After Hammarberg and Koptjevskaja-Tamm (2003) I refer to the non-neuter grammatical gender in Swedish and Danish, which developed as a merger of feminine and masculine gender, as the *common* gender, with the abbreviation C in glosses.

(124) a.   *rejseselskab-et*   *mistede*   *all-e*   **sine**   *penge*
          travel.company-DEF   lost   all-PL   REFL.POSS.PL   money.PL
          'the travel company lost all their money' (i.e. their own money)

      b.   *rejseselskab-et*   *mistede*   *all-e*   **deres**   *penge*
          travel.company-DEF   lost   all-PL   3SG.POSS   money.PL
          'the travel company lost all their money' (i.e. somebody else's money)
          (Heltoft & Hansen 2011: 497)

Reflexive pronouns generally refer to the subject in the same clause, as in (125). The reflexive possessive pronoun and the subject of the same clause are then co-referential in the binding domain (see Kiparsky 2002 for details on Binding Theory). Regular possessive pronouns refer to a different entity than the subject of the same clause; they may refer to the subject of a higher-level clause or to a different entity outside the clause in which they appear. In the Swedish examples in (126) the sentences are ambiguous; the pronoun here will typically refer to the subject of the first clause, but it may also refer to a different entity outside the clause.

(125)   *Hon*   *sa*   *att*   *de$_i$*   *hade*   *gillat*   *sina$_i$*   *klapp-ar.*
        3SG.F   said   that   3PL   had   liked   REFL.POSS.PL   gift-PL
        'She said that they$_i$ had liked their$_i$ gifts.'

(126) a.   *Hon$_i$*   *sa*   *att*   *de*   *hade*   *gillat*   *hennes$_i$*   *förslag.*
          3SG.F   said   that   3PL   had   liked   3SG.POSS.F   proposal
          'She$_i$ said that they had liked her$_i$ proposal.'

      b.   *Hon$_i$*   *sa*   *att*   *de*   *hade*   *gillat*   *hennes$_j$*   *förslag.*
          3SG.F   said   that   3PL   had   liked   3SG.POSS.F   proposal
          'She$_i$ said that they had liked her$_j$ proposal.' (i.e. somebody else's)

Adopting the terminology from the tradition of generative grammar, we can say that the domain (e.g. Chomsky 1981) — that is, the frame of reference — of reflexive pronouns is the finite clause. The domain of regular pronouns, being much larger and hard to define, must be determined with a negative condition, namely that regular possessive pronouns cannot refer to the subject in the same finite clause. Reflexive and regular possessive pronouns are thus in complementary distribution. There are, however, many examples of divergent constructions in which the reflexive pronoun does not necessarily refer to the subject of the same clause. In infinitive clauses, reflexive pronouns may refer either to the subject of the main clause or to the subject of the infinitive clause, as in (127a). In fact, regular pronouns may also be used with the same ambiguous reference in this context, as in (127b). We find the same ambiguity in participle clauses (128). In prepositional attributive clauses (129) both types of pronouns may be used to refer to the subject of the infinitive clause, while in predicative clauses (130) both types of pronouns may refer to the subject of the main clause. For an overview and more Swedish examples of such variation see Tingsell (2007: 16–19). The same variation is also present in Danish; see Heltoft and Hansen (2011: 596–597) for examples.

(127) a.   *Anna$_i$ bad   Nora$_j$ att   sälja   sina$_{i/j}$ halsduk-ar.*
              Anna   asked   Nora   to   sell   REFL.POSS.PL   scarf-PL
              'Anna$_i$ asked Nora$_j$ to sell her$_{i/j}$ scarfs.'

       b.   *Anna$_i$ bad   Nora$_j$ att   sälja   hennes$_{i/j}$ halsduk-ar.*
              Anna   asked   Nora   to   sell   3SG.POSS.F   scarf-PL
              'Anna$_i$ asked Nora$_j$ to sell her$_{i/j}$ scarfs.' (Tingsell 2007: 16)

(128) *Lena$_i$ såg   Eva$_j$ lagande   sin$_{i/j}$ /hennes$_{i/j}$ mat.*
       Lena   saw   Eva   cooking   REFL.POSS   /3SG.POSS.F   food
       'Lena$_i$ saw Eva$_j$ cooking her$_{i/j}$ food.'

(129) *Lena$_i$ älskar Eva$_j$ med   sin$_j$ /hennes$_j$ sinne   för matlagning.*
       Lena   loves   Eva   with   REFL.POSS   /3SG.POSS.F   talent   for cooking
       'Lena$_i$ loves Eva$_j$ with her$_j$ talent for cooking.'

(130) *Lena$_i$ betraktade   Eva$_j$ som   sin$_i$ /hennes$_i$ bäst-a*
       Lena   considered   Eva   as   REFL.POSS   /3SG.POSS.F   best-WK

       väninna.
       friend
       'Lena$_i$ considered Eva$_j$ to be her$_i$ best friend.'

It is clear from the examples above that the reflexive possessive pronoun in Swedish and Danish does occasionally allow long-distance binding; that is, it may be bound by an antecedent outside the finite clause (cf. Kiparsky 2002: 12).

Similarly to the s-genitive, the primary function of possessive pronouns is the determinative function. They cannot co-occur with any articles, as shown in the Danish examples in (131), and they require the definite (weak) form of an adjective in the possessive phrase, as in (132).

(131) a.   **den   /*en   min   bog*
              DEF   /INDF   1SG.POSS   book
              'my book'

       b.   **min   bog-en*
              1SG.POSS   book-DEF
              'my book' (intended meaning)

(132) *min   ny-e   bog*
       1SG.POSS   new-WK   book
       'my new book'

Since the possessive pronouns compete with determiners for the same position, Delsing (1993: 170–171) analyses them as heads of the possessive phrase, just like a definite article is the head of an NP (or a DP in the tradition of generative grammar). This analysis accounts for the syntactic differences of prenominal and postnominal pronouns, which are found in Norwegian and some dialects of Swedish (*hus-et mitt* – house.N-DEF my.N 'my house'). In this dissertation I am not concerned with the generative analysis of possessives, and thus I will treat both pronominal and genitival possessors as modifiers of the head noun, i.e. the possessum.

As regards the semantics of pronouns, it is clear that pronominal possessors are the most frequent instances of definite (and usually) human possessors (Hammarberg & Koptjevskaja-Tamm 2003: 131). Similarly to the s-genitive construction, pronominal constructions usually entail a possessum phrase referent that is unique and specific. However, these conditions need not always be fulfilled when possessive pronouns are used. The construction in (133) does not presuppose uniqueness, and the specific referent does not need to be identified by the listener, or even by the speaker, for the interaction to be felicitous.

(133)   *Det   här   har   jag   hört   av   **min**   **polare**.*
       DEM   here   have   1SG   heard   of   1SG.POSS   friend
      'I've heard this from a friend of mine.' (Hammarberg & Koptjevskaja-Tamm 2003: 132)

In this section and the sections above, I have presented the basic four attributive possessive constructions, namely the s-genitive, prepositional phrases, and regular and reflexive pronouns, which I will analyse in more detail in Chapters 5 and 6. There are, however, other adnominal constructions in use in Danish and Swedish; the following sections will focus on these less frequent constructions.

3.1.4 Compounds

Another way of expressing possession is through noun–noun compounds, in which the first part modifies the second part. These are generally very productive in both Danish and Swedish. Compounds, just like possessives, are known for the abundance of meanings that they can express. Almost any relation between two entities expressed with nouns can be found in compounding, and many of them are found in the semantics of possession, e.g. KINSHIP (*prästdotter* – priest.daughter 'priest's daughter'), the PART–WHOLE relation (*kyrktorn-et* – church.tower-DEF 'the church's tower'), OWNERSHIP or PREDESTINATION (*änkestuga* – widow.hut 'widow's hut') (Hammarberg & Koptjevskaja-Tamm 2003: 136). As is clear from the last example, the relation of OWNERSHIP is not often expressed through compounding, as it gives way to the relation of PREDESTINATION. Such compounds as those in (134b) and (135b) are then non-referential, that is, they do not refer to a specific and unique entity (as the s-genitive clearly does), but rather they express the category of an entity.

(134) a.   the s-genitive:

          kung-en-s   *dotter*
          king-DEF-S   daughter
          'the king's daughter'

      b   compounding:

          en   *kungadotter*
          INDF   king.daughter
          'a royal daughter' (own data)

(135) a.   the s-genitive:

          Jag   *bor*   *i*   *en*   *student-s*   *lägenhet.*
          1SG   live   in   INDF   student-S   apartment
          'I live in a student's apartment' (i.e. an apartment belonging to a student)

      b.   compounding:

          Jag   *bor*   *i*   *en*   *studentlägenhet.*
          1SG   live   in   INDF   student.apartment
          'I live in a student apartment' (i.e. an apartment for students)
          (Hammarberg & Koptjevskaja-Tamm 2003: 136)

However, with other relations, such as PART–WHOLE, compounds are an alternative to the s-genitive or prepositional phrases, with little to no semantic difference. Hansen (1967: 235) gives among others the following examples for Danish:

(136) a.   *bakkens top*   *toppen af bakken*   *bakketoppen*
        'the hill's top'   'the top of the hill'   'the hilltop'

      b.   *fartens begrænsning*   *begrænsning af farten*   *fartbegrænsning*
        'the speed's limit'   'limit of speed'   'speed limit'

      c.   *byens styre*   *bystyret*
        'the city's government'   'the city government'

In general the s-genitive or the PP construction which includes a non-specific or a generic referent may be easily replaced by compounding, as in the examples in (136) above or in the Swedish example: *båtmotorn* 'the boat motor' – *båtens motor* 'the boat's motor' – *motorn på båten* 'the motor of [on] the boat'. However, while the s-genitive and PP constructions may have a specific non-generic reference, the neutral reading of the compound will entail a non-referential, non-specific referent. Perhaps for that reason, PART–WHOLE relations might be more frequently expressed with compounds than with the corresponding possessive constructions, as preliminary corpus searches have suggested (Piotrowska 2017: 39).

Those searches are replicated and extended here in (137)[5] with five random examples of phrases, two with animal referents and three with inanimate referents. All examples constitute instances of the PART–WHOLE relation.

(137) a.   *båtmotorn* [230]   *motorn på båten* [16]   *båtens motor* [10]
              'the boat motor'   'the motor of [on] the boat' 'the boat's motor'

       b.   *hustaket* [819]   *taket på huset* [242]   *husets tak* [75]
              'the house roof'   'the roof of [on] the house' 'the house's roof'

       c.   *bilratten* [52]   *ratten i bilen* [113]   *bilens ratt* [16]
              'the car wheel'   'the wheel of [in] the car'   'the car's wheel'

       d.   *elefantsnabeln* [18]   *snabeln på elefanten* [4] *elefantens snabel* [34]
              'the elephant trunk'   'the trunk of the elephant'   'the elephant's trunk'

       e.   *hundtassen* [6]   *tassen på hunden* [2]   *hundens tass* [33]
              'the dog paw'   'the paw of the dog'   'the dog's paw'

The searches in (137) were restricted to definite noun phrases, so that specific reference is guaranteed. With inanimate referents (137a–c) compounds are quite frequent, but so is the construction with a prepositional phrase. Some of these expressions are clearly more lexicalized than others; for instance *båtmotorn* 'the boat motor' is certainly more frequent than the other two variants, but in the case of *the wheel of the car* it is the PP construction that dominates. Interestingly, in the two examples with animal possessors the s-genitive construction is preferred. It is important to keep in mind that the examples above include only definite NPs. As mentioned above, the use of indefinite compounds (e.g. *en båtmotor* 'a boat motor', *båtmotorer* 'boat motors') is clearly non-referential and generic, and thus not as easily interchangeable with possessives. For instance, the indefinite compound expressing 'an elephant trunk' (*en elefantsnabel* [80 hits]) is more frequent than the s-genitive variant (*en elefants snabel* 'an elephant's trunk' [3 hits]) (cf. Hammarberg & Koptjevskaja-Tamm 2003: 137). Compounds, even though they may be used to express possessive relations, are preferred with generic, non-referential meanings.

Further, it is worthwhile to mention a specific type of possessive compounds: those where the first component is a proper name. Koptjevskaja-Tamm (2013) provides an in-depth structural and semantic analysis of such compounds in Swedish. The examples include such phrases as *en Mozartsonat* 'a Mozart sonata', *Palmemordet* 'the Palme murder', *Bergmanhuset* 'the Bergman house'. Proper name compounds are used especially often to create proper names for buildings, locations, events, etc., e.g. *August Strindbergsmuséet* 'the August Strindberg museum'. On the one hand, proper name compounds are structurally less complicated than noun–noun compounds in that they do not require any extra morphological

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[5] The searches were conducted in the Swedish corpus *Språkbanken, Sociala medier*, https://spraakbanken.gu.se/, accessed 1 Aug 2019.

linking material and the form of the proper name is not altered by compounding. In another sense, proper name compounds might seem more structurally complicated, as they allow nearly any complex phrase in the first component as long as it is recognized as a name for a unique referent (Koptjevskaja-Tamm 2013: 262). While some proper name compounds are non-referential and not possessive in any sense, e.g. *Hitlermustasch* 'Hitler moustache', others are clearly referential, since they can serve as antecedents of anaphoric pronouns, e.g. *en Östen Dahlföreläsning* 'an Östen Dahl lecture' (Koptjevskaja-Tamm 2013: 287–288). The latter example is also readily interchangeable with the s-genitive construction and is thus clearly possessive: *Östen Dahls föreläsning* 'Östen Dahl's lecture'; it is similarly interchangeable with an indefinite NP: *en föreläsning av Östen Dahl* 'a lecture of Östen Dahl'. Proper name compounds are thus highly heterogeneous, just like noun–noun compounds, as they can signify a multitude of semantic relations, some of which might be referential and possessive.

3.1.5 Adjectives

Adjectives do not serve as possessive constructions in Danish or Swedish, but there is some interesting overlap between the relations expressed by possessives and denominal adjectives. Many denominal adjectives share some qualitative features with possessives, that is to say, their qualitative moment (in the terminology of Heinz 1957: 259–260) includes a possessive relation, a locative relation, etc. In such cases the s-genitive construction may be replaced by adjectives with little change in meaning, as in the Danish examples in (138). Similarly to compounds, denominal adjectives are usually non-referential.

(138) a. *et barns tankegang* — *en barnlig tankegang*
           'a child's mindset' — 'a childish mindset'

       b. *ungdommens energi* — *ungdommelig energy*
           'the youth's energy' — 'youthful energy'

       c. *Danmarks fauna* — *den danske fauna*
           'Denmark's fauna' — 'the Danish fauna' (Hansen 1967: 239)

As mentioned in the previous chapter (see section 2.4.4), possessive adjectives are another form of possession marking which is productive in many languages. Although the category of possessive adjectives seems to be absent from the Germanic languages, they do appear both in Danish and Swedish as derivations of proper names. As the formation of possessive adjectives is generally conditional on the presence of a singular, specific and most often human referent (Corbett 1987: 301), proper name referents are perfect candidates for such adjectives. Skrzypek (2016: 235–236) gives several examples of possessive adjectives in Swedish, and points out that they may often be referential, as they involve such semantic relations as AUTHOR or ORIGINATOR, as in (139).

(139) a.   *den*   *Cederlund-ska*   *vinfirma-n*
              DEF   Cederlund-ADJ.WK   wine.firm-DEF
              'the Cederlund wine firm'

       b.   *den*   *Newton-ska*   *mekanik-en*
              DEF   Newton-ADJ.WK   mechanic-DEF
              'Newtonian mechanics' (i.e. 'Newton's mechanics')

The use of possessive adjectives is often non-referential, however. There are numerous examples of adjectives expressing classification rather than specific reference or adjectives wavering between the two readings; on this point adjectives are again similar to compounds. Possessive adjectives are at best a marginal construction in Swedish and, to my knowledge, they have not yet been described in Danish.[6] A quick search of the Danish corpus *KorpusDK*, however, results in numerous and varied examples, some of which are presented in (140).[7]

(140) a.   *den*   *newton'-ske*   *gravitationskraft*
              DEF   Newton-ADJ.WK   gravitation.force
              'Newtonian gravitational force'

       b.   *det*   *New York'-ske*   *kloaksystem*
              DEF   New York-ADJ.WK   sewage.system
              'New York's sewage system'

       c.   *Orwell'-ske*   *dimension-er*
              Orwell-ADJ.PL   dimension-PL
              'Orwellian dimensions'

       d.   *den*   *Ibsen'-ske*   *naturalisme*
              DEF   Ibsen-ADJ.WK   naturalism
              'Ibsen's naturalism'

Here, we see examples of adjectives with a specific, unique reference (140a–b), even including a non-human referent (140b), as well as more classifying, non-referential possessive adjectives (140c–d). Interestingly, many of the Danish examples are written with a hyphen separating the adjectival suffix from the proper name. Although marginal, possessive adjectives are undoubtedly a substitute for the s-genitive construction used with proper names in Danish and Swedish.

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[6] Hansen (1967: 239) gives only one example of a possessive adjective in Danish, namely *det Hitlerske Tyskland* 'Hitler's Germany' (DEF Hitler.ADJ.WK Germany), which is interchangeable with the s-genitive construction: *Hitlers Tyskland* 'Hitler's Germany' (Hitler.S Germany).

[7] The search was conducted in the Danish corpus: *KorpusDK*, https://ordnet.dk/korpusdk, accessed 2 Aug 2019.

3.1.6 The use of the definite article

This construction does not have any specific name; it is characterized by the use of a definite NP instead of any overtly marked possessives like the clitic-like *-s*, a spatial preposition or a pronoun. I include the use of the definite article in my overview of possessive constructions because it is used, just like compounds or adjectives, for expressing certain possessive notions. At the same time, it should be self-evident that I do not consider the definite article to be a possessive construction. Nonetheless, as it is used in Danish and Swedish for marking inalienable possessed referents, namely body parts, it merits its place in this overview.

One of the differences between Scandinavian and, for example, English marking for body part nouns is the use of definite NPs instead of overt possessives, as in (141). The definite referent in such examples will generally always be considered to be inalienably possessed by the subject of the clause, and the definite article is interchangeable with the reflexive possessive pronoun. A referent marked with a regular possessive pronoun will be considered to belong to a different referent than the subject of the clause, as in (141c).

(141) a.   *Anna$_i$*   *tvättar*   *hår-et$_i$*
           Anna   washes   hair-DEF
           'Anna$_i$ is washing her hair$_i$.' (lit. 'Anna is washing the hair.')

      b.   *Anna$_i$*   *tvättar*   *sitt$_i$*   *hår*
           Anna   washes   REFL.POSS   hair
           'Anna$_i$ is washing her$_i$ hair.'

      c.   *Anna$_i$*   *tvättar*   *hennes$_j$*   *hår*
           Anna   washes   3SG.POSS.F   hair
           'Anna$_i$ is washing her$_j$ hair.' (i.e. somebody else's)

In general, the PART–WHOLE relation is readily expressed through simple definite NPs in Danish and Swedish; the relation most often includes animate referents and body parts, but instances with inanimate referents and their parts are also numerous, as in the following Danish examples.

(142) a.   **skib-et**   *blev*   *slemt*   *ramponeret*   *i*   **stævn-en**
           ship-DEF   became   badly   battered   in   bow-DEF
           'the ship was badly battered on the bow'

      b.   *Kan*   *Du*   *see*   **det**   **stor-e**   **Træ?**   *Der*   *skal*   *Du*
           can   2SG   see   DEF   big-WK   tree   there   shall   2SG

           krybe   *op*   *i*   **Topp-en**.
           crawl   up   in   top-DEF
           'Can you see the big tree? You have to climb to the top.' (Hansen 1967: 181)

Interestingly, singular definite NPs denoting body parts can also be associated with a plural possessor. Danish examples such as those in (143) are characterized by a distributive effect (see Vergnaud & Zubizarreta 1992 for the analysis of such constructions in French).

(143) a. ***Gaml-e***   ***Dam-er***   *kom*   *med*   *Torvekurv-en*
           old-PL   lady-PL   came   with   market.basket-DEF.SG

           over   ***Arm-en***
           over   arm-DEF.SG
           'Old ladies came with the market baskets over their arms.' (lit. 'Old ladies came with the market basket over the arm.')

       b. ***de***   *stod*   *med*   *hatt-en*   *i*   ***hånd-en***
           3PL   stood   with   hat-DEF.SG   in   hand-DEF.SG
           'They stood with their hats in their hands.' (lit. 'They stood with the hat in the hand.') (Hansen 1967: 158)

The use of definite NPs with body part nouns in Danish and Swedish thus involves an alternation with reflexive possessive pronouns. In different contexts, for example, when the possessor of the body part is the object of the clause, prepositional phrases can be used. Locative constructions with the use of prepositions are attested in both Danish and Swedish (and they are even more frequent in Norwegian; cf. Lødrup 2009). Such constructions as the one illustrated in (144) may be useful when we want somehow to distance the possessor and the possessum and place emphasis on the fact that the action is influencing the possessum (see section 2.3.3 on external possession).

(144) *De*   *slog*   *vinflask-or*   *i*   *huvud-et*   *på*   *honom.*
       3PL   threw   wine.bottle-PL   in   head-DEF   on   3SG.M
       'They threw wine bottles on his head' (lit. 'They threw wine bottles on the head on him') (Piotrowska 2019: 93)

For a study of inalienably possessed nouns and their expression in Old Danish and Old Swedish see Piotrowska and Skrzypek (2017). A general description of the use of the definite article in inalienable contexts in Scandinavian and other languages can also be found in Piotrowska (2018b) and (2019).

3.2 Dialects of Danish and Swedish

Both Danish and Swedish are characterized by substantial phonological, morphological and even syntactical (albeit at phrase level, not clause level) variation in the form of dialects. In Sweden there are six main groups of dialects: South Swedish dialects, and those of Götaland, Svealand, Norrland, Finland and Gotland. The project *SweDia2000*[8] lists and provides recordings of 107 dialects spoken in different parts of Sweden and Finland. Danish dialects

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[8] The *SweDia2000* project, http://swedia.ling.gu.se/index.html, accessed 5 Aug 2019.

can be grouped into five main variants: Insular Danish, Northern Jutlandic, Western Jutlandic, Southern Jutlandic and Bornholmish. The Department of Nordic Studies and Linguistics[9] at the University of Copenhagen reports that there are around 32 Danish dialects spoken today. Northern Swedish (Norrland) and Western Jutlandic dialects are of particular interest in this section, as they exhibit the most variation regarding possessive constructions in comparison with Standard Swedish and Danish respectively.

3.2.1 Postposed possessors

Postposed possessive pronouns, as in (145), are quite common in Northern Swedish dialects. Regular nouns are marked with a suffixed definite article (145a), since the postposed pronoun cannot function as a determiner. Interestingly, if the possessum is a relational noun expressing kinship relations (145b), the noun is not in a definite form. In the northern dialects of Swedish the postposition of pronouns is the unmarked form, while the prenominal order of pronouns (i.e. the Standard Swedish construction) is used only for emphasis. In some southern dialects of Swedish (e.g. in Södermanland and Gothenburg) this type of construction is permitted only with kinship nouns, while for common nouns the standard prenominal construction is used (Delsing 2003b: 31).

(145) a. *hus-et*   *mitt*
          house.N-DEF   1SG.POSS.N
          'my house'

     b. *far*   *min*
          father.C   1SG.POSS.C
          'my father' (Delsing 2003b: 23)

Some variants of Northern Swedish also allow proper name possessors in the s-genitive to be postposed, as in (146).

(146) *bil-n*   *Janne-s*
      car-DEF   Janne-S
      'Janne's car' (Holmberg & Sandström 1996b; cited in Julien 2005: 142)

As regards the construction with PPs in Standard Danish and Swedish, there is no possibility for pronominal possessors to be expressed with a prepositional phrase. In the Western Jutlandic dialect of Danish, however, such a construction is attested, as exemplified in (147). Further, the postposed pronominal possessive in this case cannot co-occur with the suffixed definite article, but it may co-occur with the independent preposed definite article.

(147) a. *de*   *tre*   *sort-e*   *katt-e* *af*   *mine*
          DEF.PL three   black-WK   cat-PL   of   1SG.POSS.PL
          'my three black cats'

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[9] The *dialect.dk* website, https://dialekt.ku.dk/dialektkort/, accessed 5 Aug 2019.

b. **katt-e-ne   af   mine*
cat-PL-DEF.PL of   1SG.POSS.PL
'my cats' (intended meaning) (Julien 2005: 150)

3.2.2 Garpe-genitive and proprial possession

There are two constructions widely used in Scandinavian dialects (especially common in variants of Norwegian) that use pronouns as linkers between the possessor and the possessum. In the first construction, known as the *garpe-genitive*, reflexive possessive pronouns are used to link the preposed possessor with the head noun, e.g. *Per sitt hus* 'Per's house' (Per REFL.N house.N). The second construction, which some researchers refer to as the *h-genitive* (Delsing 2003b), *possessor doubling construction* (Julien 2005) or *proprial possessive construction* (Delsing 1993), involves a preposed possessum phrase which is followed by a proprial article and a proper name possessor phrase, e.g. *hus-et hans Per* 'Per's house' (house-DEF his.PR.ART.GEN Per).

   As regards the first construction, with reflexive pronouns, it is used mainly in Norway and it is also attested in the Southern and Western Jutlandic dialects of Danish, but not in any Swedish dialect. The construction is most likely a Hanseatic innovation in Norwegian, as the pattern was borrowed from Low German during the Hansa expansion.[10] In the garpe-genitive construction the reflexive pronoun agrees with the gender of the possessum, as in the Norwegian example in (148). In Western Jutlandic, however, reflexive pronouns alternate with regular pronouns, which are not sensitive to the gender of the possessum, as in (149a). If the possessor phrase referent is inanimate, the reflexive pronouns are obligatory in this construction, as in (149b).

(148)   NORWEGIAN

jent-a   sin   katt
girl-DEF.F.SG   REFL.POSS.M   cat.M
'the girl's cat' (Julien 2005: 214)

(149)   WESTERN JUTLANDIC

a. *æ   mand   sin   /hans   hat*
   DEF   man   REFL.POSS.C /3SG.POSS.M hat.C
   'the man's hat'

b. *den   gård   sin   mark*
   DEF   farm   REFL.POSS.C land.C
   'the farm's land' (Delsing 1993: 153)

Even though reflexive pronouns typically form a constituent with the possessum phrase, in the garpe-genitive construction they tend to be prosodically and syntactically bound to the possessor phrase; the structure is thus [[Per sitt] hus]. The construction has gone through a process of reanalysis, during which the reflexive pronoun became more and more associated

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[10] Hence the name garpe-genitive, from *garp* 'a Hanseatic merchant in Bergen' (Koptjevskaja-Tamm 2003: 669).

with the modifier in the possessive phrase (see Koptjevskaja-Tamm 2003: 673–676 for a detailed analysis).

The second construction, with the inverted phrase order, of the type *huset hans Per*, is more complicated. It is attested mostly in Norway, but also in nearly the whole of northern Sweden (Delsing 2003b: 34). It does not seem to be attested in any Danish dialects. The construction is often referred to as an expression involving proprial articles or as proprial possession, i.e. possessive constructions in which the possessor is expressed by a proper name. In Norwegian and in Northern Swedish dialects proper names often appear with obligatory articles, called proprial articles, which are usually homophonous with third person pronouns, both personal and possessive. Julien (2005: 174) remarks that proprial articles are determiner-like in function, but pronoun-like in form. In these dialects proper names themselves are not inflected; the proprial article may then carry information about case, syntactic role, possession, etc., as in the following examples from a Swedish dialect from Västerbotten (Norrland), where in (150a) the direct form of the proprial article is used and in (150b) the genitive form of the proprial article is used.

(150) a. *n   Erik   ha   arrestere   student-'n*
         PR.ART.M Erik   has   arrested   student-DEF
         'Erik has arrested the student'

     b. *hus-et   hans   Erik*
         house-DEF   PR.ART.M.GEN Erik
         'Erik's house' (Koptjevskaja-Tamm 2003: 630)

The examples above exhibit neatly why this construction is not easy to analyse: the genitive forms of the proprial articles are identical with the regular possessive pronouns (*hans* 'his' and *hennes* 'hers'). The direct form of the proprial article in many dialects is also identical with the personal pronoun; *n* in example (150a) is a short form of *han* 'he'. It may be tempting to analyse these elements as pronouns. Pronouns, however, are always bound syntactically with the possessum phrase. The proprial articles used in constructions of the type *huset hans Per* are always bound syntactically to the possessor phrase, resulting in the structure [huset [hans Per]]. For instance, in the dialects where the possessor may precede the possessum (such as the Överkalix dialect in northern Sweden), the proprial article forms a constituent with the possessor phrase and always precedes it, as in (151).

(151) *häns   Viktor hesst*
      PR.ART.M.GEN Viktor horse
      'Victor's horse' (Koptjevskaja-Tamm 2003: 631)

There are, however, examples of the use of this type of construction that point towards a different analysis, namely that the element is no longer a proprial article. In some Northern Swedish dialects the linking element in a structure of the type *huset hans Per* co-occurs with a non-marked, direct proprial article, as in (152). Such examples make the morphosyntactic

status of the element less clear and lead researchers to reject or question the proprial article analysis (cf. Holmberg & Sandström 1996a).

(152) *bil-n*   *hans*   *n*   *Janne*
      car-DEF   3SG.POSS.M?   PR.ART.M   Janne
      'Janne's car' (Holmberg & Sandström 1996a: 108)

Koptjevskaja-Tamm (2003: 631) claims, on the basis of the example given above, that the element *hans* in this type of construction may no longer be seen as an inflected proprial article, but rather as an analytic construction marker. The matter becomes even more complicated when one looks at the variation of such constructions across different Scandinavian dialects. It might seem that the morphosyntactic status of the pronominal/proprial article linker will be different depending on the specific dialect. For a detailed analysis from a generative viewpoint see Delsing (2003a).

3.2.3 Possessives with definite articles

As mentioned in sections 3.1.1 and 3.1.3, both the s-genitive and possessive pronouns in Standard Danish and Swedish function as determiners and cannot co-occur with definite or indefinite articles. Some dialects, however, allow article use in possessive constructions.

Firstly, in colloquial Danish the independent preposed definite article can follow the possessor (either a pronoun or an NP in the s-genitive), as in (153). The construction is only possible when the possessum is modified by adjectives, and it can only occur in that particular order, i.e. PR + DEF + ADJ PM. For an analysis of this type of construction from a generative point of view see Julien (2005: 207–208).

(153) a.   *nabo-en-s*   *den*   *stribed-e*   *kat*
          neighbour-DEF-S   DEF   striped-WK   cat
          'the neighbour's striped cat'

      b.   *mine*   *de*   *rød-e*   *vante-r*
          1SG.POSS.PL   DEF.PL red-WK   glove-PL
          'my red gloves' (Delsing 2003b: 26)

In some dialects spoken in Finland, for example in Karleby (on Finland's west coast), the possessor phrase in the s-genitive may be followed by the possessum phrase in a definite form (with a suffixed definite article), as in *flicka-n-s hus-et* 'the girl's house' (girl-DEF-S house-DEF) (Delsing 2003b: 27). Further in the same dialect possessive pronouns may be followed by NPs showing double definiteness, that is, NPs with both the independent preposed article and the suffixed article, as in (154), as previously mentioned in section 2.5. Interestingly, double definiteness does not occur in Danish; otherwise the example in (154) is equivalent to the examples in (153).

(154) *mín*   *he*   *grann* *hest-e*
       1SG.POSS   DEF   fine   horse-DEF
       'my fine horse' (Vangsnes 1996: 2)

Vangsnes (1996) argues that the co-occurrence of possessives and articles in this case has to do with gender marking in the language. He points out that in the Karleby dialect there are no gender distinctions on articles, either preposed or suffixed. In a different Swedish dialect spoken in Finland, Lappträsk, gender distinction is present only on the suffixed article, and thus constructions like **men hest-n* 'my horse-DEF' are not permitted, but constructions identical to that in (154) are permitted because the element directly following the possessive, namely the independent definite article, does not carry gender distinction. The author concludes that the possibility of co-occurrence of pronominal possessors and the suffixed definite article "somehow relies on absence of gender marking on the constituent immediately following the possessive" (Vangsnes 1996: 26).

Similarly, in the Skellefteå dialect of Swedish (Northern Sweden), there are two sets of regular possessive pronouns: those that agree with the gender of the possessum and those that remain invariable. If the agreeing pronouns are used, as in (155a), the possessum must remain in the bare form. If, however, the invariable possessive is used, as in (155b), the possessum has to have the suffixed article.

(155) a.   *mín*   *bok*
              1SG.POSS.F.SG book.F.SG

      b.   *mine*   *bok-a*
              1SG.POSS   book-DEF.F.SG
              'my book' (Vangsnes 1999: 151; cited in Julien 2005: 203)

3.2.4 Possessive compounds

As we have seen in section 3.1.4, compounds are commonly used in Danish and Swedish in non-specific and non-referential possessive expressions. In Northern Swedish, however, compounding can be used for possessives with a specific reference, as in (156). The first component of the compound denotes the possessor and the second component the possessum. Most importantly, this type of construction has a specific prosodic pattern typical of compounds in Standard Swedish, which the regular s-genitive construction lacks. The examples given by Koptjevskaja-Tamm (2003) and Delsing (2003b: 38) point to a preference for kinship nouns or proper names as possessors in this type of construction. The first component might be in the s-genitive, as in (156b), or it may be a bare noun, as in (156a).

(156) a.   *papabok-a*
            dad.book-DEF.F.SG
            'dad's book' (Koptjevskaja-Tamm 2003: 652)

b.   *den*   *här*   *Jan-Anner-s-jänta*
   DEF   here   Jan-Anner-S-girl
   'that Jan-Anner's girl' (Delsing 2003b: 38)

3.2.5 Juxtaposition

Another interesting feature of some of the northern variants of Swedish is the possibility of using simple juxtaposition instead of possessive constructions. In examples like (157) both the possessor and the possessum need to be in a definite form, but otherwise there is no morphological marking of the possessive relation.

(157)   *bil-n*   *präst-n*
    car-DEF   priest-DEF
    'the priest's car' (Delsing 2003b: 43)

In (158) I present an example of a proprial article in the nominative preceding the proper name possessor phrase, similarly to the proprial articles described above in 3.2.2. The proprial article in this instance can alternate between nominative (158a) and genitive (158b) with no change in meaning.

(158)   a.   *strùmp-en*   *a*   *Gréta*
     stocking-DEF   PR.ART.NOM   Greta
     'Greta's stockings'

   b.   *strùmp-en*   *hànās*   *Gréta*
     stocking-DEF   PR.ART.GEN   Greta
     'Greta's stockings' (Koptjevskaja-Tamm 2003: 651)

3.2.6 Dative

Delsing (2003b) also reports that in Northern Swedish dialects there are some instances of the use of the dative case in possessive constructions, as in (159). In such provinces as Norrbotten, Västerbotten and Dalarna the dative construction has taken over the role and function of the old genitive.

(159)   *hus-e*   *pojk-om*
    house-DEF   boy-DEF.DAT.SG
    'the boy's house' (Julien 2005: 142)

The dative construction can also function with proprial articles, as in (160), where the dative case shows up only on the article.

(160)   *kappa*   *n*   *Greta*
    coat   PR.ART.DAT   Greta
    'Greta's coat' (Delsing 2003b: 42)

3.2.7 The a-genitive

The last and most marginal of the divergent possessive constructions that I wish to mention is the so-called a-genitive, appearing in the south-west dialects of Swedish (spoken in the provinces of Småland, Halland and Västergötaland), which was described by Josefsson (2009). In this construction a possessive suffix *-a* or *-e* is used, although exclusively with proper names, in the place of the regular clitic-like *-s*, as in the following examples.

(161) a. *Erik-a*   *bil*
           Erik-POSS   car
           'Erik's car'

       b. *Lis-e*   *bil*
           Lisa-POSS   car
           'Lisa's car' (Josefsson 2009: 188)

This construction is preferred to the regular s-genitive in the case of masculine proper names ending in a consonant (Josefsson 2009: 203). The marker *-a/-e* may also appear at the end of short NPs, as in (162), and thus shows some features of phrase marking or even clitics.

(162) *min*   *bror*   *Erik-a*   *hus*
       1SG.POSS   brother   Erik-POSS   house
       'my brother Erik's house' (own example based on Josefsson 2009: 215–216)

Ultimately the construction is not very frequent, and its use varies depending on the age and background of the speakers.

3.3 Possessives in the other Nordic languages

The Danish and Swedish possessive expressions described above are also used in the other Nordic languages, but their frequency of use differs. The status and register of the expressions may also differ, that is, whether a given expression belongs to the standard or dialectal variants, or whether it belongs only in colloquial speech.

   In Norway, where two standard variants, Bokmål and Nynorsk, co-occur with the largest number of distinct dialects in Scandinavia, the variety and scope of the use of possessive constructions is much more complicated than in Sweden or Denmark. As mentioned, the garpe-genitive construction is important and frequent across different variants of Norwegian, but it is not found in standard Danish or Swedish. The s-genitive is used in Bokmål and to a lesser extent in Nynorsk, but it is not widely attested in colloquial speech, where the garpe-genitive is more frequent (Faarlund, Lie & Vannebo 1997: 259; see also Torp 1973; Delsing 2003b). The s-genitive is used almost exclusively for human referents, especially for proper names, or in non-determinative genitives, e.g. *en folkets mann* 'a people's man' (Faarlund, Lie & Vannebo 1997: 255; see also Gunleifsen 2011). Overall, the s-genitive construction is often replaced in the variants of Norwegian by prepositional phrases or the garpe-genitive (Rauset 2010).

Icelandic has retained a fully functioning case system; possession is thus generally expressed with the genitive case. Both the genitive construction and possessive pronouns are regularly postposed. The construction with proprial possessives is also quite common, e.g. *hús-ið hans Jón-s* 'Jón's house' (house-DEF his.PR.ART.GEN Jón-GEN), with the difference that the proper name possessor is in the genitive case (Delsing 2003b: 34).

Faroese is also a case language, but unlike Icelandic, it has largely lost its genitive case (Lockwood 2002: 28; Thráinsson et al. 2012: 248). Prepositional phrases, and occasionally dative case, are used to express possession alongside a specific phrase-like marker, namely the sa-possessive. The sa-possessive is described as a clitic (Sigurðsson 2009: 7) or a clitic-like element (Thráinsson et al. 2012: 64). It is used exclusively for proper name possessors, as in example (163), or noun referents with proper name-like semantics: *mother*, *father*, etc.

(163)   FAROESE
        Hetta   er   Tummas   Jacobsen-sa   hús.
        DEM   is   Tummas   Jacobsen-POSS house
        'This is Tummas Jacobsen's house.' (Sigurðsson 2009: 7)

The other three Nordic languages feature a greater variety of possessive constructions than Danish and Swedish. The two East Scandinavian languages were chosen for the present study specifically due to their similarities in expressing possession. When a diachronic aspect is introduced to the study of possessive constructions, the similarities of Danish and Swedish in this respect are a great advantage. In the present study only the standard variants of Danish and Swedish are taken into consideration; however, should any of the dialectal constructions described in 3.2 occur frequently in the studied corpora, they will be described accordingly.

In this chapter, I have presented the most common attributive possessive constructions that are in use in Standard Danish and Swedish, as well as those used in dialects of these two languages. In the next chapter, I present the methodological basis for the empirical studies, namely the theoretical framework and the selected tenets of Functional Grammar. I also present the corpora, the annotation principles and the statistical tests used in the empirical studies.

Methods, sources and tools

In this chapter, I present the basis of the empirical studies described in Chapters 5 and 6, namely the methodology and theoretical framework, sources of the corpus texts, and tools used in the corpus analysis. Firstly, in 4.1 the functionalist approach to language and grammar is presented, together with the frameworks relevant for the present study. I will show how the chosen functionalist approaches are utilized in the empirical studies conducted here, and I will present my research hypotheses. Secondly, the corpus texts are described in detail in 4.2, and thirdly, the main tool used for the corpus analysis is presented in 4.3, together with the principles of annotation. In 4.4 I present and discuss the statistical tests used throughout the analysis.

4.1 Methodology: functionalism

There is no single linguistic theory or model that I adhere to in this study, but I draw from various functionalist approaches as presented in the frameworks of Halliday (1970; 1973; Halliday & Matthiessen 2004), Dik (1978; 1997), Siewierska (1991) and Givón (1995a; 2001). Functionalism or Functional Grammar in itself is not a uniform theory of language, but rather a series of approaches which all share certain basic tenets. The main premise of functionalism is the context-bound definition of grammar, which states that grammatical constructions and the rules that govern them are not formed in a void, independently of context, but are necessarily formed with respect to the larger pragmatic context and to the functions that they serve. Functionalist approaches are often defined in contrast to the formal approaches of generative grammarians. Within the formal frameworks language is seen as an abstract object, rules of syntax are thought to be independent of the meanings and uses of the constructions, and the greatest focus is placed on speaker competence, namely the capacity to produce, interpret and judge sentences (Dik 1978: 1). It follows that syntax is given priority over semantics, and semantics is prioritized over pragmatics. Within the functionalist approaches language is seen as a tool of social interaction used with the goal of establishing communicative relations between speakers and addressees (Dik 1978: 1). What is more, the rules of syntax and the form of constructions are influenced by the use and the ultimate purposes of these constructions. The way the language is used shapes its form. Here the greatest focus is placed on communicative competence, that is, the ability to interact socially by means of language (Dik 1978: 2; see also Halliday 1970). One of the main questions that linguists try to answer within functionalism is in what way the function and use of language determine its form. It follows that pragmatics is an all-encompassing framework within which semantics is given priority over syntax. The premises of functionalist approaches, based on a list by Givón (1995a: 9), are given in (164).

(164)   a. language is a socio-cultural activity
       b. structure serves cognitive or communicative functions
       c. structure is non-arbitrary, motivated, iconic
       d. change and variation are ever-present
       e. meaning is context-dependent and non-atomic
       f. structure is malleable, not rigid
       g. grammars are emergent

Of the premises listed above, (c) and (d) will be most prominently utilized in the empirical studies concerning possessives and possessive variation in the following chapters, although all of the tenets will hopefully resonate in the analyses. Regarding premise (c), it must be stated that viewing the structure of language as non-arbitrary and iconic is not an uncontroversial position. Here the functionalist grammarians go against the classic Saussurean tradition in linguistics. While the smallest units of language are arguably symbolic and thus arbitrary and not motivated, the structures made out of combinations of those symbols are motivated (see section 4.1.2 below for more detail). The iconicity of language structure can be treated in more radical or less radical terms. For instance, the fact that singular nouns are not longer than plural nouns in the languages of the world is a straightforward example of iconicity (Greenberg 1966: 94). More controversial examples include Haiman's (1983) treatment of inalienable nouns, where the smaller amount of coding in marking the possessum stems from the lack of conceptual distance between the possessor and, for instance, their body part. Regarding premise (d), it is again contrasted with the Saussurean tradition, in which synchrony and diachrony were sharply separated. Functionalists propose a more holistic view of language change as a continuous process.

      As presented by Dik (1978: 13) functional relations operate on three levels: the semantic functions level, the syntactic functions level, and the pragmatic functions level. The semantic functions specify the roles played by the referents within the predication. The roles include Agent, Goal, Recipient, etc. In the context of the present studies the semantic roles include the possessor (PR) and the possessum (PM), as already described in Chapter 2. The syntactic functions specify the perspective from which the given situation is presented in the linguistic expression. The syntactic functions include Subject and Object. In the empirical studies presented here the influence of syntactic roles on the use of possessives will be less pronounced, but nonetheless present. Lastly, the pragmatic functions specify the information status of the constituents within the wider communicative setting in which they occur. Dik (1978: 13) distinguishes four main pragmatic functions: Theme and Tail, Topic and Focus. The framework of topicality and the distinction between given and new referents is described in section 4.1.3 below, as it is one of the main constraints used in the corpus analysis. In short, all three levels of functional relations influence and co-determine the final meaning of a linguistic expression, or, in more formal terms, a construction. In this sense, constructions are seen as form–meaning pairings in which semantics and pragmatics contribute to the shape of the construction. The concept of a construction as a form–meaning pairing is a basic tenet of Construction Grammar (CxG, Fillmore, Kay & O'Connor 1988; Goldberg 2006; Hoffmann & Trousdale 2013; Hilpert 2014), which originated within functional and cognitive linguistics, and will thus be treated here as a functionalist approach.

As the meaning (semantics and pragmatics combined) and function of expressions determine their form, the construction the speaker chooses will be heavily influenced by the context of the situation. As Rosenbach points out, linguistic choices are always functional in that "they are utilized to serve different cognitive and/or communicative needs" (2002: 94). In the present work the concept of a construction is understood in accordance with this framework.

Another important premise that needs mentioning is the usage-based approach, which is common to the cognitive, constructionist and functionalist frameworks (Langacker 1987; 1995; Givón 1995a; Tomasello 2003; Goldberg 2006; Bybee 2010). The term was coined by Langacker (1987), who postulated that experience with language creates and determines the cognitive representations for language (Bybee 2013: 49). Functionalist approaches as described above are usage-based, in that it is presupposed that usage of language impacts its form; that grammar is learned from and thus shaped by usage. In the usage-based approaches focus is placed on the repetition of individual units and sequences of units. Repetition leads to the conventionalization and automation of sequences used in language, and different sequences will be conventionalized to different extents. For that reason, the importance of frequency effects needs to be highlighted, as both type and token frequencies contribute to the understanding of the grammatical organization (Bybee 2013: 50). Token frequency, i.e. the number of times a given construction occurs in a text or corpus (or what in CxG terms is referred to as a construct), is important especially in the case of fixed expressions, as the accessibility of the expression is strengthened by repetition (Bybee 2013: 59). Type frequency, i.e. the number of realizations of a particular construction, is particularly important in the case of semi-fixed expressions and grammatical constructions, as it relates directly to their productivity.

The methodology that I employ in this study is inscribed in the functionalist approach to language, but it is important to note that the overall functionalist framework described above shares its premises with both Construction Grammar and Cognitive Linguistics. In fact, the latter can be seen as the overarching framework of functionalism.

Functionalist approaches make use of, among others, the concept of iconicity in grammar, the importance of hierarchies and prototypes in the categorization of notions, and the role of information structure. I find these theoretical concepts particularly appropriate for studying the variation of possessive constructions. Consequently, in the following paragraphs I will discuss:
- the animacy hierarchy;
- iconic and economic motivation;
- topicality and the given/new distinction.

4.1.1 Animacy hierarchy

Animacy is an inherent property of a referent. As a biological dimension, the most common understanding of animacy is as a binary distinction between living and non-living concepts (± animate). Animacy as a linguistic factor is much more nuanced, as it reflects not only the animacy status of a referent, but also whether and to what extent language users treat referents linguistically as if they were animate. For instance, in certain languages, including several Australian languages, proper names and kinship nouns are treated as higher in animacy than common nouns denoting humans (Blake 1977). Humans are generally considered to be more

animate than animals, or in other words, they are higher on the animacy scale, due to the anthropocentric character of human cognition (Yamamoto 1999: 9–14). An extended referential hierarchy, in which referents are ordered from the highest (left) to the lowest (right) degree of referentiality, introduced by Silverstein (1976: 122), is given in (165).

(165)   1st person > 2nd person > 3rd person > pronoun > proper name > human > animate > inanimate

As Croft (2002: 130) and Rosenbach (2002: 42) rightly point out, this hierarchy in fact contains three different scales: the person hierarchy (1st, 2nd and 3rd person), the referentiality/topicality hierarchy (pronoun, proper name, common noun) and the animacy hierarchy proper (human, animate, inanimate). These different aspects interact and heavily influence each other (see also Dahl 2008 on the relationship of animacy with other categories, such as personhood and topicality); they will nonetheless be treated separately here. The animacy hierarchy as applied by Comrie (1981) is described as a three-stage scale, i.e. human > animal > inanimate. Some languages offer less fine distinctions, where only the binary opposition between human and non-human, or animate and inanimate referents is used. The understanding and description of some languages — or rather, some grammatical constructions — nevertheless benefits from much finer distinctions, such as that in Table 6, presented by Rosenbach (2008: 153) specifically for the context of genitive variation in English.

Table 6. Animacy hierarchy based on Rosenbach (2008: 153)

animate				inanimate		
human →	animal →	collective →	temporal →	spatial →	inanimate	
the boy's bike	*the dog's collar*	*the company's director*	*Monday's mail*	*London's suburbs*	*the building's door*	

Collective referents, usually in the form of nominal phrases describing groups of people, often waver between animate and inanimate readings, e.g. *police* understood as an institution ([–animate]) or a group of people ([+animate]). This accounts for the placement of collective referents between animates and inanimates. Within the inanimate group, temporal and spatial referents are higher than common inanimate noun phrases. This is motivated by previous studies on genitive variation in English (Rosenbach 2002: 2) and Swedish (Koptjevskaja-Tamm 2002b: 150–152), which showed higher use of the s-genitive construction with temporal and spatial nominal phrases. Firstly, these noun phrases often occur as proper names, which accounts for the different treatment of these NPs. Secondly, both temporal and spatial NPs are particularly good candidates for anchoring referents, which is one of the basic functions of possessive expressions (see section 2.1). Temporal and spatial NPs thus serve as situational modifiers of the head nouns by anchoring them with respect to time or location (Rosenbach 2008: 153).

The effect of animacy on grammatical constructions has been broadly studied in general (Dahl & Fraurud 1996; Yamamoto 1999) and in more specific contexts, such as case marking variation (Blake 1977) and genitive variation, which is especially well studied in English (Altenberg 1982; Jucker 1993; Rosenbach 2002; 2005; 2008; Kreyer 2003; Hinrichs

& Szmrecsanyi 2007). In the aforementioned studies animacy has been shown to be one of the major constraints on the choice of possessive constructions, in that the English s-genitive occurs more frequently with human and animate referents, while prepositional constructions are more likely to occur with inanimate referents.

In the present study the scale of animacy as presented by Rosenbach (2008) is used with one small addition. As historical Swedish and Danish texts are abundant in referents connected to religion and spirituality (*gods*, *angels*, etc.), I use an additional label for such referents and regard them as *abstract animates*. These referents are placed between *human* and *animal* referents in the hierarchy, as they are not fully human in the sense that they do not occur in possessive relations denoting OWNERSHIP. Further, this distinction is proposed so that the results for the category *human* will not be skewed by the very frequent use of the referent *god* in the material. The animacy scale used in this dissertation is shown in Table 7.

Table 7. Animacy hierarchy used in the present study

animate					inanimate	
human →	abstract animate →	animal →	collective →	temporal →	spatial →	inanimate
the girl's book	*God's will*	*the cat's whiskers*	*the firm's policy*	*yesterday's paper*	*Stockholm's schools*	*the car's tyres*

4.1.2 Iconic and economic motivation

The concept of iconicity relies on the assumption that the structure of language reflects in some way the structure of experience, that is to say, the structure of the world together with the language user's perspective of that world (Croft 2002: 102). This means that language structure is not arbitrary, but motivated, in the sense that the relation between different linguistic signs reflects the relation of their referents (Haiman 1980: 515). Various subtypes of iconic effect on grammar have been introduced, such as isomorphism or linguistic distance. The basic assumption of isomorphism is a lack of true synonymy in language, that is, two linguistic forms will never express exactly the same meaning (Haiman 1980). There will always be some semantic and pragmatic distinctions that motivate the use of different linguistic expressions. In the basic definition by Givón iconicity in grammar is based on the fact that language is built up from "a relatively small number of general, cognitively transparent iconic principles" (Givón 1995b: 49). These principles combine with more domain-specific and seemingly arbitrary conventions typical for a given grammatical domain, but even these conventions show some level of iconicity.

Givón (1995b) formulates several principles of iconic motivation. Firstly, there is the proximity principle, which draws on the concept of iconic or conceptual distance (Haiman 1983). The proximity principle states that entities "that are closer together functionally, conceptually, or cognitively will be placed closer together at the code level, i.e. temporally or spatially" (Givón 1995b: 51). The conceptual distance is thus iconically reflected in the coding of linguistic expressions. One example of this principle at play is the placing of restrictive modifiers of head nouns within the NP under one intonational contour (e.g. *the small house*, not **the small, house*). Another example is the tendency for less coding in the case of inalienably possessed entities. Since body parts are inseparable, the conceptual

distance between the possessor and their body parts is virtually non-existent, which is oftentimes reflected in the morphology or syntax of the possessives (see section 2.3.2).

Secondly, Givón (1995b: 54–56) distinguishes a set of two principles relating to sequential order. The first is the semantic principle of linear order, which states that the order of clauses in an utterance or discourse will reflect the temporal order of the occurrences that the clauses describe, as in example (166).

(166)   a.   *He opened the door, came in, sat and ate.*
        b.   **He sat, came in, ate and opened the door.* (Givón 1995b: 54)

There is also the pragmatic principle of linear order, which involves the use of word order to indicate the topicality or animacy of referents in the sense of their importance or accessibility in discourse (see e.g. Becker 2014). More important or urgent information will be placed first in an utterance or string of words.

The third principle presented by Givón (1995b: 49), the quantity principle, is what Haiman (1980; 1983) refers to as economic motivation. The principle states that less predictable information and more important information will be given more coding material. The more mental effort is required to process given information, the more coding is needed to express it. In other words, the conceptual simplicity of a notion corresponds to the simplicity of its form or expression (Haiman 1983: 801). An example of economically motivated construction is the presence of the full form of the reflexive pronoun in English when the object of the verb is unexpected or needs to be explicitly stated, as in (167a). If the object is predictable, the reflexive is redundant, as in example (167b).

(167)   a.   *Max kicked himself.*
        b.   *Max washed (himself).* (Haiman 1983: 803)

Haiman (1983: 802) separates iconic and economic motivations, as he argues that reduced form or lack of marking in an expression is not an iconic index of a concept, or the familiarity of the concept. The reduction is economically rather than iconically motivated. Givón (1995b: 51) postulates, on the other hand, that economic motivation stems from a much more general economy of mental processing which is a constraint on all mental operations. Economy is thus a driving force and motivation for iconicity in language and does not need to be taken as a concept different from iconicity. In an earlier publication Givón expresses this in the following way:

> In other words, economy is at the motivational bottom of at least one property common to all diagrammatic-iconic representations, namely the need to represents [*sic*] a real entity, having potentially an infinite number of points and interrelationships between them, within finite *time* and by finite physical or neurological *means*. […] So that ultimately one may wish to view economy as a major *mechanism* which shape [*sic*] the rise of iconic representation in language. (Givón 1985: 190)

In the case of possessive constructions, iconic and economic motivations are often mentioned in the context of possessive splits in the marking of inalienable possession. Haspelmath (2008) argues that the tendency for shorter or zero coding of inalienably possessed referents has to do with economy, rather than iconicity in the sense of conceptual distance between the possessor and the possessum as argued by Haiman (1983). The referents in inalienable possessive constructions are very often expressed by relational NPs, denoting KINSHIP or PART–WHOLE relations. Language users can easily predict that NPs such as *mother*, *leg*, or *roof* will be used in relation to another anchoring referent, the possessor. Since such expressions are easily predictable and frequent, they require less mental effort to process and thus overt coding is redundant. In a classic understanding of economy by Zipf (1935), frequency leads to predictability and predictability leads to less coding.

In the present study, I use the concepts of *iconicity* or *iconic motivation* in the sense of conceptual distance, in other words, in accordance with the principle of proximity as treated by Givón (1995b). I will use the concept of *economy* or *economic motivation* in accordance with Givón's (1995b) principle of quantity as described above. I treat iconic and economic motivation as two related concepts which both fall under the more general motivation of economy in cognitive processing. In short, a possessive NP which is iconic will be regarded as exhibiting a close relation between the possessor and the possessum (e.g. KINSHIP, PART–WHOLE). And a possessive NP which is economic will be easier to process. Iconic and economic motivations are not treated as mutually exclusive; in fact, they will often overlap, as possessive NPs which are iconic are generally considered to be easier to process and thus more economical (Rosenbach 2002: 106; see also Givón 1985). I do not wish to postulate that the two motivations need to be disentangled in every case.

Iconicity and economy are also connected to the concept of weight. Right-branching languages, such as English, Swedish, and Danish, place heavier constituents (e.g. complex modifiers) to the right of the head noun. By the same token, heavier (in the sense of structural complexity) or longer constituents are placed after shorter constituents in a string of words. At the same time, since more mental effort is required for the processing of long or complex constituents, it is more economical to place them later in the discourse. This principle is referred to as the Principle of End Weight; it will be discussed in connection with the length variable in section 4.3.2.

4.1.3 Topicality: the given/new distinction

Topicality is the dimension of the information structure that provides information about the status of those referents about which information is to be provided or requested in the discourse (Dik & Hengeveld 1997: 312). In the tradition of Functional Grammar there are two distinct ways of treating topicality or topical referents. The concept of topic is understood as given or familiar information (Halliday 1970; Dik 1978), or it refers to particularly salient and important (generally new) information in discourse (Givón 1995a: 51–54). While the salience and importance of a referent is easy to judge in constructed examples, it would require many arbitrary decisions in judging natural text referents. For that reason, I use the terms *topic* and *topical* exclusively for given and familiar information, following the approach taken by Rosenbach (2002). Further, in the case of topicality I use the term *referent* specifically for discourse referents connected with the text at hand, not the general reference. It follows that

unique or generic referents will be considered only with respect to their discourse status in the given text and not their reference in terms of lexico-encyclopaedic knowledge associated with the referent.

Within topicality and information structure we can distinguish *given* and *new* functions in the discourse. According to Siewierska (1991: 155–156) these terms may be treated in two distinct ways: relational and referential. In the relational sense, the terms given and new refer to the value of information conveyed by a particular element in the discourse as perceived by the addressee or hearer. It is regarded as relational because *given* (tied directly to topic) is only familiar relative to *new* (tied directly to focus) and vice versa. In the referential sense, on the other hand, the terms given and new reflect the cognitive status of discourse referents as perceived by or stored in the mind of the speaker. The cognitive status is understood as "a reflection of the location of the referent or concept in both short-term and long-term memory" (Siewierska 1991: 156). In this way, what is given is considered to be active, immediately retrievable and thus familiar, while what is new is considered to be inactive, irretrievable from memory and thus brand new in the discourse. In the following, I will be using the terms given and new in the referential sense, as referents will be considered as given or new not in relation to each other, but rather in relation to the preceding discourse. Information status has been described as an important factor in genitive variation (Biber et al. 1999: 305–306), as the given and new distinction has a bearing on the placing of elements on the clause level or the phrase level. What is given is usually placed earlier in a string than what is new, which is also compatible with the economic motivation underlying cognition, namely that familiar and accessible information is easier to process than new information.

Following Rosenbach (2003) and Hinrichs and Szmrecsanyi (2007) I operationalize the given/new distinction of the referents based on previous mentions in the text. In that way, a given referent is always a second-mention referent. I define a second-mention referent as being co-referential with a referent in the preceding text. It will usually coincide with a definite expression, at least in the present-day texts in the corpora. A new referent is a first-mention referent, and it is not retrievable from the previous discourse. New referents will usually be expressed by indefinite NPs in contemporary texts. Referents retrievable through indirect anaphora (for example, *the book – the author*) are problematic and complex. They should be treated as "given-and-new-entities", as they combine easy accessibility (familiarity) with the establishment of new nodes in the text discourse (Schwarz-Friesel 2007: 11). I treat all instances of indirect anaphoric referents as new referents, because they do refer to an entity or referent being introduced into the discourse for the very first time, even though that referent may be inferable through some other referent or the more general context of the text. New referents introduced through indirect anaphors signal accessibility of the text referent, but they still bring new information into the text (cf. Schwarz-Friesel 2007).

Further, there is a considerable overlap between the concepts of definiteness and topicality, and both are used in the present study as constraints in the expression of possession. Definiteness is a grammatical category, while topicality is a purely conceptual entity. Both are connected to information structure and to the same conceptual notions, namely familiarity, identifiability and accessibility (Hawkins 1978; C. Lyons 1999: 2–13). As mentioned above, in present-day Danish and Swedish texts given referents will overlap with definite expressions, while new referents will have indefinite expressions. The same

cannot be stated for historical texts, as the definite and indefinite articles were then in the process of grammaticalization. In fact, even though topicality and definiteness overlap to a great extent in contemporary language use, there are numerous examples where this is not the case. Such instances include first-mention definites, as in (168), and subsequent-mention indefinites, which are often NPs with generic reference (cf. Fraurud 1990). In the case of (168), no previous reference to *stairs* needs to be made even in an indirect way (e.g. *a house*, *an entryway*) for the referent to be definite in Swedish.

(168)   *En   katt   satt   i   trappa-n.*
        INDF   cat   sat   in   stair-DEF
        'A cat sat on the stairs.'

Differentiating between the constraints of definiteness and topicality thus has its merits for the diachronic part of the study, as well as for the synchronic part.

4.1.4 Research hypotheses

Based on the functionalist approaches described above, the research hypotheses for this study can now be defined. The study presented in the following chapters is twofold. Firstly, a diachronic overview of possessive constructions is given based on Danish and Swedish texts written between the years 1250 and 1700. The frequency and constraints on the use of the possessive constructions are the focus of the analysis. Secondly, a study is made of genitive variation, namely the choice between the s-genitive and possessive prepositional phrases, in present-day Danish and Swedish texts. Statistical tools are used to measure the importance of the contributing factors in the choice of each construction. Factors or constraints include animacy, topicality, definiteness, phrase length, and the type of semantic notion of possession.

The research hypotheses are as follows:

A.   The use of a particular possessive construction is not arbitrary, but depends on interconnected constraints.

B.   The constraints on the use of possessive constructions change over time.

C.   In historical texts, the adnominal possessive constructions are used more frequently for expressions of prototypical notions of possession than for expressions of more marginal notions. Thus, the use of possessives advances from prototype to periphery.

Hypothesis A stems from a general and basic assumption within the functionalist framework, namely that the choice of a given construction is influenced by the overall pragmatic context and the functions that the construction serves. In the case of animacy, it has been shown that the English s-genitive construction is more strongly preferred with human and animate possessors than with inanimate ones. The same assumption can be made for Swedish and Danish. In the animacy hierarchy presented in Table 7 in section 4.1.1, the more animate is the possessor referent, the higher is the likelihood that the s-genitive construction will occur. In the case of iconic and economic motivation, possessive NPs in which referents

are considered to be more bonded and conceptually closer together (such as KINSHIP or PART–WHOLE relationships) are predicted to be more frequent with the s-genitive. The s-genitive is structurally a more compact construction than prepositional phrases. In other words, if the relation between the referents in a possessive NP is not particularly close, it is more probable that the PP construction will be used. Here semantic notions of possession come into play, as the conceptual distance of the referents is inscribed in the nature of the possessive relation between those referents.

Iconicity can, however, be treated in broader terms than just conceptual distance, namely as a reflection of the relation between the referents. In that case, an iconic possessive expression will reflect the schemas underlying possession (which differ from the semantic notions of possession; see section 2.2). The schema of existence includes notions of CONTROL and OWNERSHIP, while the schema of location includes notions of LOCATIVE possession and PART–WHOLE relation. The hypothesis here is that the schema of existence will be iconically expressed through the s-genitive, as it is a more compact construction, while the schema of location will be expressed through prepositional phrases, as prepositions are iconically the primary means to express location. The premises for this hypothesis are, however, tightly connected to the constraint of animacy.

The constraint of topicality states that given and familiar information will be placed earlier in a string than new information, for efficiency of processing. It is then predicted that the s-genitive will occur more frequently in the combination g*iven possessor – new possessum*, and prepositional phrases in the combination *given possessum – new possessor.* Other predictions can be made based on several other constraints. The s-genitive will be preferred in the case of longer possessum phrases, while prepositional phrases will be preferred in the case of longer possessor phrases, in accordance with the Principle of End Weight. The s-genitive is also preferred with grammatically definite PR referents, although the constraint of definiteness is likely epiphenomenal to the constraint of topicality.

Hypothesis B states that the constraints on the use of possessives change over time. This will be shown in the diachronic part of the study. First, the general frequencies of all of the possessive constructions (i.e. genitive, regular and reflexive possessive pronouns, and prepositional phrases) will be compared across Danish and Swedish. Factors such as animacy, topicality and the type of possessive relation will be studied in relation to the types of texts in the corpus. Since possessive prepositional phrases were only beginning to emerge in the studied period (1250–1700), focus will be placed on the genitive construction (i.e. the genitive case and the developing s-genitive) and the differences between the genitive and its present-day counterpart. For instance, it is predicted that the genitive construction in the history of Swedish and Danish was less frequent with inanimate possessor referents, while the present-day s-genitive occurs with inanimate possessors more often.

Hypothesis C concerns the semantic notions of possession described in detail in section 2.1. The prototypical notions of possession as defined by Taylor (1995) and Langacker (1995) and later adopted by Rosenbach (2002; 2003), namely OWNERSHIP, KINSHIP and PART–WHOLE relations, are iconically more bonded and closer in terms of conceptual distance compared with other relations expressed through possessives (e.g. LOCATIVE or ABSTRACT possessives). For that reason, I hypothesize that the prototypical notions of possession will be more frequently expressed through adnominal possessives in the oldest

historical texts than the other, more peripheral types of possessive relations. If this were confirmed, it would mean that the functions and uses of adnominal possessive constructions expanded over time from the prototype to the periphery, which would have implications for the overall processing of the notion of possession in language.

4.2 The corpora

In the following sections I present the periodization of the languages as well as the corpora of texts used in the empirical studies discussed in Chapters 5 and 6.

4.2.1 Periodization of Danish and Swedish

Since the diachronic part of the analysis is concerned with texts written before the modern varieties of Danish and Swedish were established, it is worthwhile to explain the periodization of the corpus texts used in the analysis.

North Germanic languages first became distinguishable from other Germanic languages most likely already around 200 AD; that period is usually called the Proto-Nordic period. Around 500 AD the Ancient Nordic language took form in a more prominent manner (Bandle et al. 2002), but already ca. 800 AD the internal differences between the language varieties became more pronounced and Old Nordic split into two branches: eastern and western (see Figure 2).
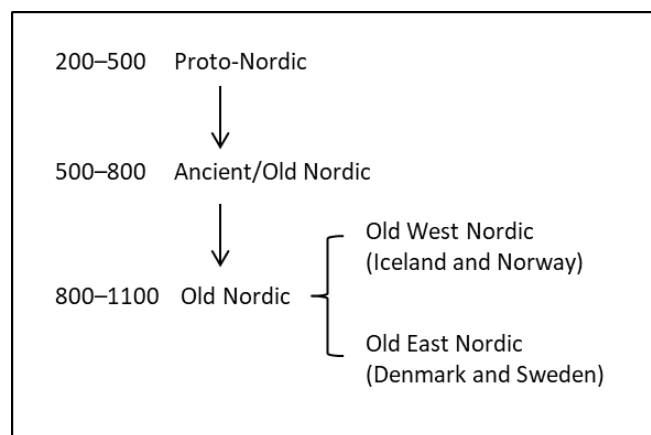
Figure 2. Periodization of the North Germanic languages before 1100, based on Skrzypek, Piotrowska, and Jaworski (2021)

Figures 3 and 4 show the periodization of Swedish and Danish in accordance with the tradition of their respective language histories. What is commonly known as Old Nordic is referred to as Runic Danish and Swedish (*runedansk* and *runsvenska* respectively). Both Old Swedish and Danish are subdivided into two periods: early and late (or in the terms used in Scandinavia: older and younger). For both languages the beginning of the Old period is marked by the oldest extant legal manuscripts written in Latin script. In Swedish language history the composition of *Äldre Västgötalagen* (1225) marks the beginning of the period, while in Danish the year 1100 is conventionally used, as it is assumed that the first legal texts must have appeared after that time (although the earliest manuscripts date to ca. 1300) (Bandle et al. 2002: 819). The Old Swedish/Danish period ends ca. 1530 with the

Reformation in those countries and the first translations of the New Testament. The subdivision of the Old period falls somewhere around 1350–1375, when as a result of the Great Plague the old scribal norms ceased to exist and a new unified written form of the languages emerged (Bandle et al. 2002: 788). The Early Modern Swedish and Danish epochs last until ca. 1700. The beginning of the 18th century conventionally marks the transition to the (Late) Modern varieties of these languages. For Swedish the symbolic date of that transition is set at 1732, when the first issue of *Then Swänska Argus*, a newspaper by author and historian Olof von Dalin, was published.

```
800–1225     Runic Swedish (runsvenska)
                   │
                   ▼                          ┌─  1225–1375   Early Old Swedish (klassisk fornsvenska)
1225–1526    Old Swedish (fornsvenska) ─┤
                   │                          └─  1375–1526   Late Old Swedish (yngre fornsvenska)
                   ▼
1526–1732    Early Modern Swedish (äldre nysvenska)
                   │
                   ▼
1732–present    (Late) Modern Swedish (yngre nysvenska)
```
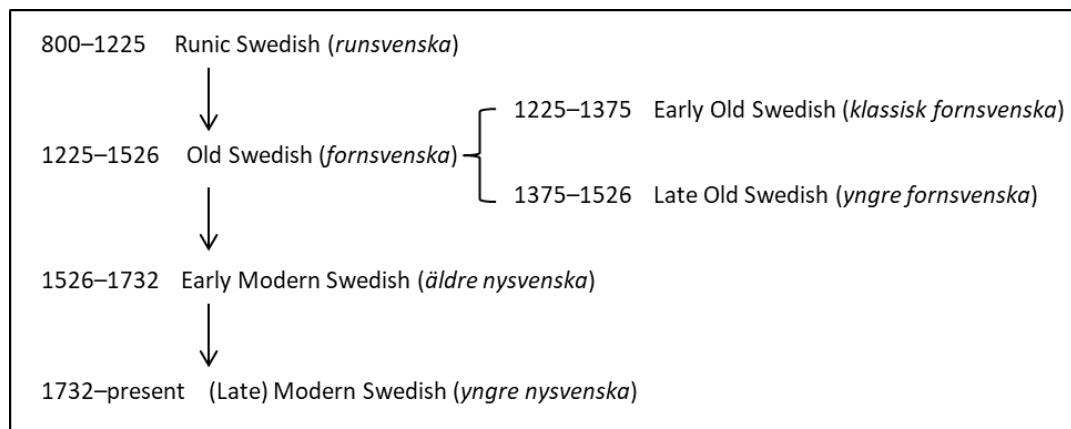
Figure 3. Periodization of Swedish after 1100

```
800–1100     Runic Danish (runedansk)
                   │
                   ▼                          ┌─  1100–1350   Early Old Danish (ældre gammeldansk)
1100–1537    Old Danish (gammeldansk) ─┤
                   │                          └─  1350–1537   Late Old Danish (yngre gammeldansk)
                   ▼
1537–1700    Early Modern Danish (ældre nydansk)
                   │
                   ▼
1700–present    (Late) Modern Danish (yngre nydansk)
```
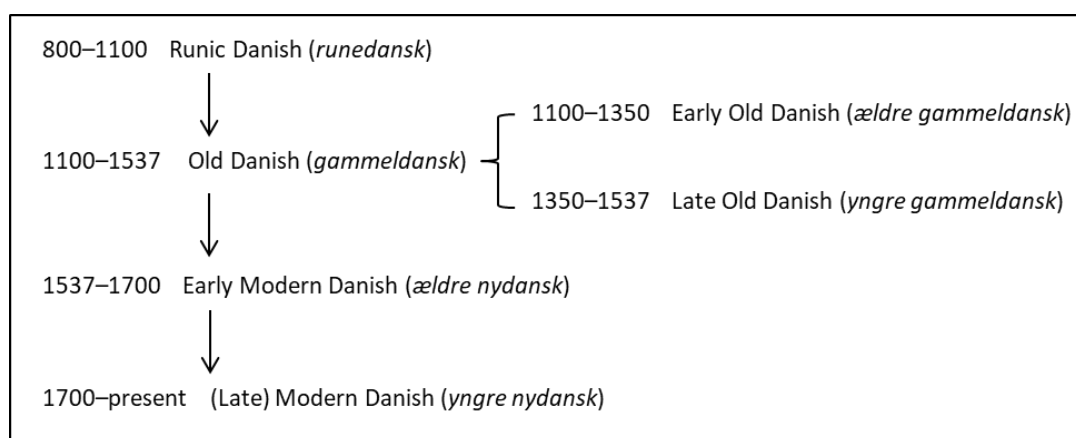
Figure 4. Periodization of Danish after 1100

Based on the traditional periodization presented in Figures 3 and 4, and considering the need to further subdivide the Old Danish and Old Swedish periods so as to better reflect the linguistic development of these languages, a modified periodization will be used for the purpose of this study, as given in Table 8. Further, the periodization presented here follows the dating of the corpus texts, the oldest of which are dated at ca. 1250. Periods I to III cover the Old Danish and Swedish epochs, while Period IV corresponds to the Early Modern Danish and Swedish period, and lastly, contemporary texts constitute their own period.

Table 8. Periodization of Danish and Swedish used in the present study

Danish and Swedish	
Period I	1250–1350
Period II	1350–1450
Period III	1450–1550
Period IV	1550–1700
Contemporary Danish/Swedish	the 21st century

To divide the Old Danish/Swedish epoch into equal periods of 100 years, the year 1450 marks the transition from Period II to Period III. This is in accordance with the tradition of Swedish language history, as texts written after 1450 exhibit considerable differences in terms of morphology and vocabulary compared with earlier texts (cf. Hirvonen 1987; Håkansson 2008; Skrzypek 2012).

4.2.2 The diachronic corpus

The diachronic corpus comprises Danish and Swedish texts written between 1250 and 1700. The majority of the texts, namely those written between 1250 and 1550, were compiled for the purposes of the research project "Diachrony of article systems in Scandinavian languages" financed by the National Science Centre in Poland (Skrzypek, Piotrowska & Jaworski 2021). The texts were compiled from existing digitized sources, mainly *Fornsvenska textbanken*[11] by Lars-Olof Delsing and *Middelalder og renæssance*[12] by Det Danske Sprog- og Litteraturselskab, which are the largest repositories of Old Swedish and Old Danish texts respectively. The Swedish texts written after 1550 were also obtained through *Fornsvenska textbanken*, while the Danish texts from Period IV (1550–1700) were obtained through open source websites: *danmarkshistorien.dk*[13] published by Aarhus University and *Arkiv for Dansk Litteratur*[14] published by Det Danske Sprog- og Litteraturselskab. The texts for the diachronic corpus were manually annotated between January and August 2019.

The texts chosen for the diachronic corpus represent three major genres of the period, namely legal texts, religious prose and profane prose. The legal texts were chosen because they represent the oldest extant texts written in Danish and Swedish in Latin script. Furthermore, they are native to Scandinavia and they are not translations of continental or other model texts. Thus, they must be included in the study of Old Swedish and Danish, even though legal texts may not be fully comparable to other genres due to their linguistic conservatism and particular style (Gunnarsson 1982). Religious and profane texts were chosen as they provide fragments of high narrativity in which an abundance of different NP referents may be found. These texts, in particular those written between 1250 are 1550, are often translations or adaptations from other languages (most notably German and Latin), and therefore foreign influence on the language of these texts cannot be excluded. However, they

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[11] *Fornsvenska textbanken*, https://project2.sol.lu.se/fornsvenska/
[12] *Middelalder og renæssance*, https://dsl.dk/website?id=32
[13] *danmarkshistorien.dk*, https://danmarkshistorien.dk/
[14] *Arkiv for Dansk Litteratur*, http://adl.dk/

must be included in the corpus due to the limited availability of native texts from these periods. The profane texts from Period IV (1550–1700) are mostly instances of diaries, letters and official ordinances (which are comparable to legal texts) written without foreign models. As mentioned earlier, due to the varied availability of texts and particular genres in Old Swedish and Danish, the diachronic corpus is not entirely uniform, as Figure 5 illustrates. For this reason, particular attention will be paid to the factor of genre in the diachronic study (Chapter 5), as it may influence the results.
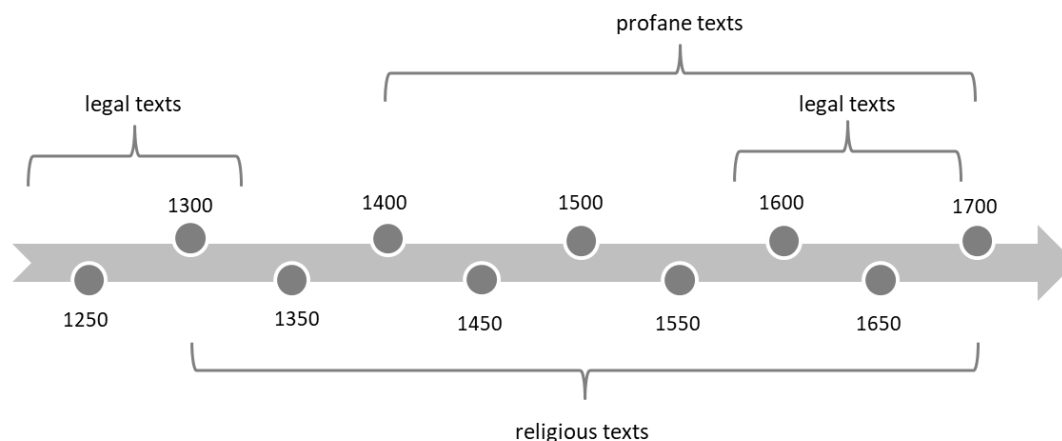
Figure 5. Timeline and genres in the diachronic corpus

Table 9 gives the length of the diachronic corpus (in number of words) across each period and language. The lengths of texts for Periods I–III in both languages are quite uniform. Since Periods I–III correspond to Old Danish and Swedish epochs, while Period IV covers the entire new epoch in the history of these languages (Early Modern Danish and Swedish), I decided that the corpus for Period IV should be at least as large as that for Periods I–III (i.e. 30 000 words for Old Danish/Swedish = Periods I–III, and 30 000 for Early Modern Danish/Swedish = Period IV).

Table 9. Number of words in the diachronic corpus

Period	Danish	Swedish	Total
I. 1250–1350	9,213	12,241	21,454
II. 1350–1450	12,050	11,172	23,222
III. 1450–1550	10,980	7,079	18,059
IV. 1550–1700	30,174	30,807	60,981
Total	62,417	61,299	123,716

I selected fragments of 22 texts in Swedish and 28 texts in Danish for the corpus. The oldest texts in Danish are shorter than those in Swedish, thus more texts were sampled. The

fragments were chosen largely at random; for the prose texts fragments with longer descriptions were selected over dialogues. The lengths of fragments range from ca. 700 to 6,500 words, the mean length being 2,230 words for Danish and 2,787 words for Swedish.

Table 10 illustrates the number of possessive NPs annotated in the diachronic corpus. In accordance with the aforementioned principle, more NPs are tagged in Period IV. Since this period covers 150 years (compared with 100 years for each of the remaining periods) a sample of 800 possessive NPs was selected. The possessive NPs were chosen at random, that is, the first 400 or 800 instances (depending on the period of the texts) are included in the study. The possessive NPs tagged in the diachronic corpus include: (1) the genitive case; (2) prepositional phrases; (3) regular possessive pronouns; and (4) reflexive possessive pronouns.

Table 10. Number of possessive NPs tagged in the diachronic corpus

Period	Danish	Swedish	Total
I. 1250–1350	400	400	800
II. 1350–1450	400	400	800
III. 1450–1550	400	400	800
IV. 1550–1700	800	800	1,600
Total	2,000	2,000	4,000

In the following I briefly describe the texts in the diachronic corpus, which are classified here firstly by period and secondly by genre. The complete source list together with the relevant manuscript symbols is included in the Sources section at the end of the dissertation.

Period I (1250–1350)

Legal texts: *Äldre Västgötalagen* (SV_AVL), *Östgötalagen* (SV_OgL), *Dalalagen* (SV_DL), *Eriks Lov* (DA_ErL), *Skånelagen* (DA_SL), *Skånske Kirkelov* (DA_SKL), *Valdemars Lov* (DA_VL)

The first three texts are the oldest Swedish provincial laws written before 1300. They are divided into parts and codices dealing with different areas of law. For this study fragments of the criminal law (*drapa balken*, *af mandrapi*) were chosen from all three texts, as well as fragments of the marriage law (*gipta balken*, AVL and OgL) and the inheritance law (*ärvdabalken*, AVL). While the language of AVL is considered to be archaic in comparison with other laws from the same period, the language of OgL is deemed to be quite modern (Ståhle 1967; Holmbäck & Wessén 1979). The four selected Danish provincial laws were written between 1200 and 1300, *Skånelagen* and *Skånske Kirkelov* being the oldest. While the selected fragments of ErL, SL and VL all include classical codices such as the criminal law and the inheritance law, *Skånske Kirkelov* is not so much a codex as a legal agreement between the archdiocese of Lund and its inhabitants; the part selected for the study comprises rules of conduct in church.

Religious texts: *Codex Bureanus* (SV_Bur), *Pentateukparafrasen* (SV_Pent), *Mariaklagen* (DA_MK), *Marialegende* (DA_ML), *Skriftemålsbøn* (DA_SB)

Codex Bureanus is a collection of legends about the lives of saints; it is a free translation of *Legenda aurea* by Jacobus de Voragines. The legend selected for this study is *Af ioakim* ('On Joachim'). Pent is a translation of the five books of Moses; the selected fragment contains the story of Abraham. Bur is the oldest religious text in the corpus, composed ca. 1300. Because the three oldest religious texts in Danish are relatively short, the entire extant fragments are selected for the corpus. MK is a lament and prayers of St. Mary as she witnesses the crucifixion of Jesus. ML relates two short stories about the miracles of St. Mary, and SB is a relatively long prayer following ML in the same manuscript. The texts were composed between 1300 and 1325.

Period II (1350–1450)

Religious texts: *Helga manna leverne* (SV_HML), *Järteckensboken* (SV_Jart), *Själens tröst* (SV_ST), *Aff Sancte Kerstine hennis pyne* (DA_Kerst), *Aff Sancta Marina* (DA_Mar), *Huoel Sancte Pouel vort pint* (DA_Pouel), *Sjalens trost* (DA_ST)

The Swedish texts HML and Jart are collections of short texts relating miracles and hagiographic legends. Both are found in the same manuscript from 1385, although HML is thought to be a later creation due to its more modern language and spelling. *Själens tröst* is one of two texts in the diachronic corpus whose versions are found in both Old Swedish and Old Danish. Both versions are translations from the Low German *Seelenstrost* from ca. 1425. The remaining Danish religious texts from this period relate legends about the saints: St. Christina, St. Marina the Monk and St. Paul. All three texts are found in the same manuscript dated to ca. 1450.

Profane texts: *Karl Magnus* (SV_KM), *Sju vise mästare* (SV_SVM), *Gesta danorum* (DA_GD)

KM is a Swedish translation of an earlier Norwegian version of two tales of Charlemagne (*Karlamagnús Saga*). It is dated to ca. 1400. The Danish version of the same text is also included in the study, but in Period III. SVM is a collection of short novellas; the narrative has a Chinese box structure with protagonists of the main story telling short morality tales to other protagonists. It is dated to 1430–50. *Gesta danorum* is a collection of descriptions relating various events in the history of Denmark, and is dated to ca. 1380–1400.

Period III (1450–1550)

Religious texts: *Linköpinglegendariet: Legenden om Sankta Amalberga* (SV_Linc), *Af Jeronimi levned* (DA_Jer), *Jesu Barndoms Bog* (DA_Jesu), *Af Katherine legende* (DA_Kat)

Linköpinglegendariet is a collection of legends about saints; the one chosen for this study is

a legend of St. Amalberga composed around 1520. Jer and Kat are Old Danish versions of the legends of St. Jerome and St. Catherine of Siena. They are found in the same manuscript dated to 1488. *Jesu Barndoms Bog* is an apocryphal story about the childhood of Jesus. The stories are based on an apocryphal gospel by an unknown author. The manuscript is dated to ca. 1510.

Profane texts: *Sagan om Didrik af Bern* (SV_Did), *Historia Trojana* (SV_Troja), *Christoffer 3. af Bayerns forordning om landefred* (DA_FO), *Karl Magnus Krønike* (DA_KM)

Did is an Old Swedish version of the Old German story of Didrik of Bern; it was based on an earlier Old Norse version from ca. 1250 (Skrzypek 2012: 21). The Old Swedish translation is dated to ca. 1500. *Historia Trojana* is a free translation from Latin relating the story of the Trojan War. It is dated to 1529. It is included in the study as it is considered by many researchers to be the last Old Swedish text (Ståhle 1967: 121; Hirvonen 1987: 63; Håkansson 2008: 21; Skrzypek, Piotrowska & Jaworski 2021). As mentioned earlier, KM is the Danish version of the stories of Charlemagne. The Danish text is dated to 1480. FO is a collection of short regulations issued by King Christopher of Bavaria, the king of Denmark, Sweden and Norway, following the peasant uprisings of 1440–41. The text was composed in 1442.

Period IV (1550–1700)

Religious texts: *Arndt, En sann christendom: Om kärlekens fruchter* (SV_Arn), *Fremmedartiklerne* (DA_FA), *Kirkeordinansen* (DA_KO)

In Period IV only three texts are classified as religious. Arn is a 1647 Swedish translation of *True Christianity* by Johan Arndt, a German Lutheran theologian. *Fremmedartiklerne* ("Foreign articles") is a set of 25 short articles describing the King's view of the proper Lutheran interpretation of Christianity, wich any foreigners who wished to settle in Denmark or Norway had to heed. The articles were composed in 1569. *Kirkeordinansen* ("The church ordinance") is a piece of legislation for the church and its works from 1539. It contains provisions on the teachings and ceremonies of the Danish Lutheran Church. The last two texts are pieces of official legislation; however, the fragments chosen for the study concern the issues of faith and its teaching, thus they are classified here as religious.

Profane texts: *Agneta Horns levnadsbeskrivning* (SV_AH), *Anna Vasas brev* (SV_AV), *Carl Carlsson Gyllenhielms anteckningar* (SV_CCG), *Haqvin Spegel: Dagbok* (SV_HS), *Jon Stålhammars brev* (SV_JS), *Olaus Petri krönika* (SV_OP), *Peder Swarts krönika* (SV_PS), *Urban Hiärne: Stratonice* (SV_UH), *Om Ove Gieddes ekspedition* (DA_OG), *Poul Helgesens Skibbykrønike* (DA_PH), *Roskilde adelige Jomfrukloster* (DA_RAJ), *L. C. Ulfeldt: Confrontationen i Malmø* (DA_UCM), *L. C. Ulfeldt: Rejsen til Korsør* (DA_URK)

As regards the Swedish texts from Period IV, AH is a 1657 autobiography of Agneta Horn, a Swedish noble-born who travelled extensively around Europe. AV is a collection of letters of the Swedish princess Anna Vasa composed between 1591 and 1612. CCG is a 1640 collection

of short entries relating historical events in Sweden, written by soldier and politician Carl Carlsson Gyllenhielm. HS is a diary of Swedish archbishop Haqvin Spegel; it was written ca. 1680 and it is largely concerned with the events of the war in Skåne in 1675. JS is a collection of letters from Swedish soldier Jon Stålhammar to his wife. The letters, filled with beautiful expressions of love and devotion, were written around 1700. OP is a famous *Chronicle of Sweden* written in 1530 by historian and humanist Olaus Petri. Even though its date of composition places it technically in Period III, it is a work written in Early Modern Swedish and thus certainly belongs in Period IV. PS is a chronicle relating the reign of King Gustav Vasa, written in 1560 by Peder Swart, a bishop and historian. UH is a partly autobiographical romance novel written by Swedish chemist and writer Urban Hiärne in 1665.

As regards the Danish texts, OG is a 1623 story of the voyage of Admiral Ove Giedde to India, where he worked to secure an agreement for trade routes of the Danish East India Company. PH is a historical chronicle written down around 1534 by monk and historian Poul Helgesen. The text relates the events leading up to the Reformation of Denmark in 1536. RAJ is a founding document for the Convent of the Virgin composed in 1699. The fragment chosen relates rules for the everyday life of the convent dwellers, and as its language is not comparable to legal jargon, it is classified as profane prose in the corpus. UCM and URK are autobiographical works of Leonora Christina Ulfeldt. In UCM (1659) she relates the story of her defence of her husband against accusations of treason in Malmö, while URK (1656) tells the story of her journey to Korsør, where she sought reconciliation with the king of Denmark.

Legal texts: *Christian 4.s håndfæstning* (DA_CH), *Frederik 2.s ordinans om ægteskabssager* (DA_FOA), *Forordning om Betlere* (DA_FOB), *Forordning Om Klædedragt, Bryllupper, Barseler og Giestebudde* (DA_FOKBB)

A handful of Danish texts from this period are official legal documents and regulations. CH is a document that contains the conditions for King Christian IV's exercise of power after being elected. The document was composed in 1596. FOA is a 1582 ordinance on matrimonial matters issued by King Frederick II of Denmark. The law provides rules on, among other things, betrothal, barriers to marriage, and conditions for the dissolution of a marriage. FOB is a 1683 ordinance about poverty and the welfare of the poor. FOKBB is a 1683 regulation intending to limit the population's consumption of clothing as well as the amount of food and beverages at weddings, maternity parties and other banquets. Due to the lack of available sources, no similar texts are included in the Swedish part of the diachronic corpus.

In the next section I describe the corpus of contemporary Danish and Swedish texts created for the purposes of the study in Chapter 6.

4.2.3 The contemporary corpus

The corpus of contemporary Danish and Swedish texts is a newly compiled corpus for the purposes of this study. All texts selected for the corpus were written in recent years, the oldest text having been published in 2011. Three different registers were selected, namely literary texts, press texts and blog texts, so that the diversity of language use is reflected and so that possible differences in the use of possessives in different registers or genres are explored. The texts for the Swedish part of the corpus were gathered and manually annotated between

November 2017 and January 2018. The texts for the Danish corpus were gathered and annotated between July and August 2018, and subsequently between May and August 2020. Necessary corrections and minor changes to the annotation were made continually throughout the project whenever necessary. The texts will not be presented in their entirety; only individual sentences will be cited, with the source given both in this dissertation and in any future publication of the data, as is the practice of, for example, *Svenska språkbanken*. The complete list of sources for the contemporary corpus is given in the References section.

The literary texts in the corpus include randomly chosen fragments of 11 novels in Swedish (published between 2011 and 2014) and fragments of 13 novels in Danish (published between 2013 and 2019). All of the novels were written by native speakers of the respective languages, and were retrieved in an e-book format (EPUB). The selected fragments vary in length; the average length is 2,367 words for the Swedish literary texts and 2,859 words for the Danish texts. The press texts include 22 fragments of articles in Swedish (published between 2015 and 2017) and 27 fragments in Danish (published between 2012 and 2019). The press texts were retrieved from online open access articles in various Danish and Swedish newspapers and magazines. The lengths of the fragments are very diverse, as both short news reports and longer reportage pieces are included. The average fragment length is 1,140 words for Swedish and 1,390 words in Danish. The blog texts selected for the corpus include 23 fragments in the Swedish corpus (texts published in 2014–2017) and 17 fragments in the Danish corpus (texts published in 2014–2019). The blog entries written by Danish or Swedish native speakers were selected randomly through Google searches and websites listing the most popular blogs in the respective languages. The selected entries fall mostly into the categories *travel*, *lifestyle* and *parenting*, as the authors of such entries produce on average longer texts than, for example, fashion-themed blogs. The fragments selected contain on average 1,100 words in the Swedish corpus and 2,340 words in the Danish corpus. The discrepancy here results from the fact that the randomly selected Danish blogs were simply more abundant in text than the Swedish blogs. Furthermore, multiple entries were sometimes selected from the same blog, with the restriction that not more than three texts were authored by the same person.

It is important to note that there are large tagged corpora of contemporary Danish and Swedish available online, namely *KorpusDK* for Danish, published by Det Danske Sprog- og Litteraturselskab, and *Språkbanken* for Swedish, developed by the University of Gothenburg. In designing the project I chose not to use these corpora, for several reasons. Firstly, the contemporary corpus constitutes just half of the entire project, and I strove to make the diachronic and synchronic corpora comparable not just in their lengths, but also in the methods and tools used for their annotation and analysis. Thus, the contemporary corpus had to be designed with the limitations of the diachronic corpus in mind. Secondly, in the aforementioned tagged corpora there is no access to full texts, and only searches for specific linguistic items are available. The design of the studies presented in this dissertation is founded on the premise of annotation of possessive expressions in longer fragments of texts, so that an analysis of certain variables, such as animacy, topicality, or definiteness, would be possible. Especially in annotating the topicality of referents, one needs access to the full text and context of each NP (see the next section for the premises and principles of annotation). For these reasons, the contemporary corpus of Danish and Swedish compiled for this project

is well suited for the tasks at hand.

In Table 11 I present the length of the contemporary corpus (in number of words) across the three selected registers. Directly following is Table 12, which shows the numbers of all possessive NPs annotated in the contemporary corpus.

Table 11. Number of words in the contemporary corpus

Period	Danish	Swedish	Total
literary texts	37,169	26,038	63,207
press texts	37,542	25,086	62,628
blog texts	39,796	25,304	65,100
Total	114,507	76,428	190,935

Table 12. Number of possessive NPs tagged in the contemporary corpus

Period	Danish	Swedish	Total
literary texts	895	662	1,557
press texts	894	759	1,653
blog texts	691	676	1,367
Total	2,480	2,097	4,577

Note the large discrepancy in the lengths of the Danish and Swedish corpora (Table 11). As already mentioned, the Swedish texts were annotated and analysed first. Around 25,000 words from each register were selected, and their annotation resulted in 2,097 possessive NPs. The Danish corpus was compiled later on the basis of the Swedish one. It quickly became clear, however, that Danish contemporary texts do not yield as many possessive NPs as the Swedish ones. Initially, the same quantities of texts, approximately 25,000 words for each register, were annotated in Danish, but this yielded only ca. 1,300 possessive NPs in total. For this reason, more texts were successively added to the Danish corpus (equally in each register) so that the total amount of possessive NPs matched that found in the Swedish corpus (see Table 12). Furthermore, as regards the number of annotated NPs, I did not strive to obtain the same amount of possessive NPs from each register. The aim was rather to see how many possessive NPs can be obtained from the same amount of text (different for each language). This will also allow me to hypothesize which contemporary registers (out of the three included in the study) tend to use possessives more often than others. The differences between the registers will be explored in Chapter 6.

4.3 Annotation of the corpora

In this section I describe the annotation tool created for the project and the principles of annotation, together with all of the variables, used throughout the project.

4.3.1 The DiaPoss annotation tool

For the purposes of this doctoral research project, the manual tagging system *DiaPoss* (Diachrony of Possession) was created to facilitate the process of collecting and annotating

the linguistic data. The system is based on the open-source Tagger framework, available at the GitHub platform (https://github.com/rjawor/tagging), created by Rafał Jaworski, PhD. Versions of this tagging system were previously used in other linguistic projects (Stroński, Tokaj & Jaworski 2020; Skrzypek, Piotrowska & Jaworski 2021).

The features of the DiaPoss system include: storage of corpus texts in .doc or .txt format; storage of information about the texts (language, period, number of words, etc.); automatic splitting of the text into individual words; and manual annotation of individual words. What is more, each annotation is saved automatically in a periodically backed-up database, which minimizes the risk of losing the data. The annotation of words is multi-level; namely, the user first defines the levels of information, or in other words variables, such as *possessive construction*, *definiteness*, *animacy*, *topicality*, and so on. Within these variables, the user then defines individual tags. For instance, within *possessive construction* the following tags are defined: *s-gen*, *PP*, *pron*, *refl pron* (respectively: s-genitive, prepositional phrases, regular pronouns, reflexive pronouns). Variables and tags can be freely added, deleted, edited, and ordered. DiaPoss is thus a very flexible system that can be tailored to the particular aims of the project at hand.

After entering all necessary variables and tags, the user can manually annotate chosen words, in this case possessive expressions. The interface of DiaPoss exhibits the text sentence by sentence, split into individual words. The interface provides a table-like content where each word can be annotated at different levels of information (variables). An example of an annotated possessive construction in DiaPoss is shown in Figure 6. The arrow icons serve to navigate between the sentences in the text. The user can highlight each of the variables to show the tags together with their keyboard shortcuts; in Figure 6 DEF of PR (definiteness of possessor) is highlighted. Multiple tags can sometimes be chosen for the same variable, as is the case with the *Semantics* level, in which I mark whether the word is countable, whether it is concrete or abstract, and whether it is a possessor phrase or a possessum phrase. Note that not all information shown in Figure 6 is used in the present project; in the next section I describe in detail all the variables and tags relevant for the studies presented in the following chapters.

Even though the annotation process is manual, the DiaPoss system provides several features that improve efficiency of use. The abovementioned keyboard shortcuts facilitate and speed up the tagging process. Further, the system displays a context-sensitive list of prompts of available annotation tags for a specific word. If a particular word has already been annotated in the system, a prompt with suggestions appears, see Figure 7. The user can accept a chosen suggestion, upon which most of the variables will be filled with the same tags used for the word that was annotated before.

Figure 6. A possessive construction annotated in DiaPoss

Figure 7. Automatically generated tagging suggestions in DiaPoss

After the annotation process, the tagged possessive constructions were exported together with the relevant variables into an Excel file, as in Figure 8. The user selects what data should be exported; the search can be as broad as possible (for example, by selecting all words tagged as possessors), or narrower by selecting only data from particular languages, periods or even texts (for example, by selecting only s-genitive constructions from literary Danish texts). The data exported in that way was then entered into the IBM SPSS Statistics package, the software that facilitated all of the calculations and statistical tests used in the present dissertation.

	A	B	C	D	E	F	G	H	I	J
1	word	poss_expr	number	countability	concrete	notions	PR length	PM length	animacy_of_PR	animacy_of_PM
2	timmars	s-gen	PL	COUNT	ABSTR	TEMPORAL	4	3	temp	inanim
3	Sveriges	s-gen	SG	COUNT	CONCR	LOCATIVE	3	4	spatial	human
4	Socialdemokraternas	s-gen	PL	MASS	CONCR	SOCIAL ROLE	7	6	collect	human
5	Sveriges	s-gen	SG	COUNT	CONCR	LOCATIVE	3	7	spatial	inanim
6	meters	s-gen	PL	COUNT	ABSTR	ATTRIBUTIVE	4	1	inanim	inanim
7	Nyheters	s-gen	SG	COUNT	CONCR	LOCATIVE	5	5	inanim	inanim
8	svenskars	s-gen	PL	COUNT	CONCR	ABSTRACT	6	1	human	inanim
9	riksdagens	s-gen	SG	COUNT	CONCR	ATTRIBUTIVE	3	5	collect	inanim
10	kanslihusets	s-gen	SG	COUNT	CONCR	LOCATIVE	4	3	inanim	collect
11	Regeringens	s-gen	SG	COUNT	CONCR	ABSTRACT	4	1	collect	inanim
12	demokratins	s-gen	SG	COUNT	ABSTR	ATTRIBUTIVE	4	2	inanim	inanim
13	Socialdemokraternas	s-gen	PL	MASS	CONCR	SOCIAL ROLE	7	6	collect	human
14	Stockholms	s-gen	SG	COUNT	CONCR	LOCATIVE	2	6	spatial	collect
15	partiprogrammets	s-gen	SG	COUNT	ABSTR	ATTRIBUTIVE	5	4	inanim	inanim
16	högerns	s-gen	SG	MASS	CONCR	ABSTRACT	2	2	collect	inanim
17	Mötets	s-gen	SG	COUNT	ABSTR	ABSTRACT	2	2	inanim	inanim
18	Edéns	s-gen	SG	COUNT	CONCR	SOCIAL ROLE	3	3	human	collect
19	värnpliktigas	s-gen	PL	COUNT	CONCR	CONTROL	4	2	human	inanim
20	demokratins	s-gen	SG	COUNT	ABSTR	ABSTRACT	7	4	inanim	inanim

Figure 8. The exported data from DiaPoss

Figure 9. The search window for combinations of tags in DiaPoss

Another important function of DiaPoss is the Statistics Module, which is used to search for words that meet specific criteria. The user can search for all words with one specific tag or with various combinations of tags. Even though the module does not generate any statistical measures except for raw frequencies, this option is invaluable in searching for examples of specific types of constructions. Figure 9 shows the search window with an example of a search for s-genitive possessors that are tagged as definite and human.

The results of this search are illustrated in Figure 10. Firstly, through the panel at the top of the page the search can be narrowed with respect to language, epoch, and even a particular text (listed under Document). Below that panel, the total number of words found that fulfil the given search criteria is shown. Additionally, the system displays a comprehensive list with all the words found together with their larger context. Next to each word on the list is a direct link that takes the user to the sentence in question, so that the annotated word can be viewed in full or edited. This option has been invaluable in the process of checking and correcting the annotations. One can, for example, search for all examples of indefinite possessors, and by going through the list filter out any incorrectly annotated words.

Figure 10. An example of a simple search in DiaPoss – definite and human possessors in the s-genitive found in Modern Swedish

The DiaPoss system is an invaluable tool which, thanks to its flexibility, could be precisely tailored to the present project. All of the data reported on in this dissertation has been annotated in DiaPoss, although a part of the diachronic Danish and Swedish data was imported together with the tags from a similar system developed for a separate project (the DiaDef system; see Skrzypek, Piotrowska & Jaworski 2021). In the next section, I present the annotation principles and all variables and tags used in the studies presented in Chapters 5 and 6.

4.3.2 Principles of annotation

As regards the data selection, there were almost no restrictions on which possessive NPs were selected in the diachronic corpus. All adnominal expressions of possession, including the genitive case, prepositional constructions and pronominal constructions (with regular and reflexive pronouns), were annotated in the corpus. The only constructions that were excluded were examples of compounds and other, marginally used, constructions, such as the possessive dative. Such constructions were extremely rare in the diachronic corpus, and so their inclusion would not have resulted in any significant new findings.

The selection of data in the contemporary corpus was much more restricted. The annotated possessive expressions include regular and reflexive possessive pronouns and, more importantly, only interchangeable examples of the s-genitive and the prepositional construction. In case of doubt, the possibility of interchangeability was verified through searches in the corpora of *Språkbanken*[15] (the subcorpora: *Skönlitteratur*, *Sociala medier*, and *Tidningstexter*) for Swedish and the corpora of *KorpusDK*[16] for Danish. For instance, to check whether the Swedish s-genitive construction *samhällets värderingar* 'society's values' (Snaprud 2016) can be rendered as a prepositional construction, I searched for the phrase *värderingar hos + substantiv* 'values of + noun'. I then checked whether this phrase occurs with collective or human possessor referents; if there were more than 50 uses of this kind, the phrase was accepted as an example of an interchangeable expression. In this case, the search resulted in over 100 cases of phrases such as *värderingar hos befolkningen* 'values of the inhabitants', *värderingar hos människor* 'values of people', *subjektiva värderingar hos juristerna* 'subjective values of lawyers', and so on. Furthermore, there seems to exist a restriction on the interchangeability of s-genitive and PPs when it comes to the semantic notions of OWNERSHIP and CONTROL/DISPOSAL. Hammarberg and Kopjevskaja-Tamm (2003: 138) state that these relations cannot be expressed through prepositional constructions in Swedish, but require the s-genitive or pronouns. Some examples of such relations expressed with the s-genitive were found in the corpus (ca. 40 examples), such as *grannens shäfer* 'the neighbour's dog' (Axelsson 2014) or *Lenes bil* 'Lene's car' (Piran 2017). They were all excluded after searches in *Språkbanken* and *KorpusDK* showed that there were no corresponding PP constructions for these phrases. Only one example of an OWNERSHIP or CONTROL relation expressed with a prepositional construction was found in the corpus, which confirms that these relations are not readily expressed through PPs. I will return to this topic in Chapter 6.

The following types of constructions were also excluded from the contemporary corpora of Danish and Swedish as they are not interchangeable:

i.   fixed expressions, collocations and names (*dagens rätt* 'meal of the day', *Folkets hus* 'The People's House');

ii.   any s-genitive possessor phrase that is not followed by an explicit possessum phrase, since the change to a PP would require adding a lexical item (*Kinberg Batras öde har*

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[15] *Språkbanken* available at: https://spraakbanken.gu.se/korp/
[16] *KorpusDK* available at: https://ordnet.dk/korpusdk

slående likheter med Mona Sahlins. 'Kinberg Batra's fate has striking similarities with Mona Sahlin's.'; SV, Ekdal 2017);

iii. lexicalized phrases with nouns: *sort* or *slag* 'kind' (*en sorts grön bil* 'some sort of a green car'), and *typ* 'type' (*den typen av forskning* 'this type of research').

I would also like to enumerate certain types of constructions that are included in the study of contemporary Danish and Swedish (Chapter 6), and justify my choices, since they may not be straightforward. The following types of constructions, among others, are included in the study.

i. Some non-determiner genitives, specifically measure genitives, are included in the study, as the s-genitive and the prepositional construction are fully interchangeable in such phrases, as in (169).

(169) a.   s-genitive

en	*två*	*timm-ar-s*	*resa*
INDF	two	hour-PL-S	journey

'Two hours' journey'

b.   prepositional phrase

en	*resa*	*på*	*två*	*timm-ar*
INDF	journey	on	two	hour-PL

'A journey of two hours'

ii. Phrases of the type *början av* 'the beginning of', *slutet av* 'the end of' — the prepositional construction seems to be preferred in such examples, but the corresponding s-genitive constructions are also found in the corpora for the study, as well as in *Språkbanken* and *KorpusDK*.

iii. Some conventionalized names, especially those of universities. Even though the official names include the s-genitive (*Stockholms universitet* 'Stockholm University', *Københavns Universitet* 'University of Copenhagen'),[17] the corresponding prepositional constructions with the same denotation occur relatively often both in the corpora for the study and in *Språkbanken* and *KorpusDK* (as in *universitetet i Stockholm/København* 'the university of Stockholm/Copenhagen').

iv. Prepositional constructions in which the possessum phrase is indefinite. Studies on English genitive variation often exclude such examples as not interchangeable (Rosenbach 2005; Hinrichs & Szmrecsanyi 2007), since the s-genitive possessor renders the possessum definite. While this is not disputed, it is also clear that the s-genitive possessor does not always render the possessum phrase unique (see also

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[17] Note that the official English translations do not use the s-genitive, but the original names do.

section 2.5 in Chapter 2 for discussion on definiteness in possessive constructions). Thus, *a daughter of my friend* can be exchanged for *my friend's daughter* with the possessum referring to the same person. See also examples in (170) where a PP construction with an indefinite possessum is shown also to allow the s-genitive. Additionally, since definiteness in Danish and Swedish possessive constructions has not yet been studied in detail, it is worthwhile to analyse such examples even if their interchangeability might be disputed.

(170) a.   *Att*   *kategorisera* *är*   **en**   **grundläggande**   **funktion**   *i*
            to   categorize   is   INDF   fundamental   function   in

              språk-et.
              language-DEF
              'Categorizing is a fundamental function of language.' (SV, Hagren Idevall 2017)

      b.   *Att*   *kategorisera* *är*   *en*   *av*   **språk-et-s**
            to   categorize   is   one   of   language-DEF-S

              grundläggande   **function-er**.
              fundamental   function-PL
              'Categorizing is one of language's fundamental functions.' (my reformulation)

v.   Prepositional constructions that show postmodification of the possessor phrase, as in (171). Even though it is clear that the s-genitive is disfavoured in such contexts for stylistic reasons, it is also known that group genitives are allowed in both Danish and Swedish, especially in colloquial use (see e.g. Piotrowska 2017; 2018a). Furthermore, there are some examples of group genitives in the corpus as well, as in (172).

(171) *där*   *man*   *inte*   *ville*   *avslöja* **kön-et**   **på**   **förövare-n**
      where one   not   wanted   reveal gender-DEF on   perpetrator-DEF

      av   ***ett***   ***brott***.
      of   INDF   crime
      'where one did not want to reveal the gender of the perpetrator of a crime.' (SV, Holmberg 2017c)

(172) *Men*   *det*   *er*   **politiker-ne**   **på**   **Christiansborg-s**   **job**   *at*
      but   3SG.N is   politician-DEF.PL on   Christianborg-S   job   to

      trække *en*   *streg* *i*   *sand-et*.
      draw   INDF line   in   sand-DEF
      'But it is the politicians at Christianborg's job to draw a line in the sand.' (DA, Seeberg 2019)

Having discussed the selection of the data in both studies, I will now turn to discussing the variables and tags used throughout the project. Table 13 shows all the relevant variables

and their corresponding tags from the DiaPoss tool.

Table 13. The annotation variables and tags defined for the present project

No.	Variable	Tags
1.	Poss exp (possessive expression)	S-GEN (s-genitive)
		PP (prepositional phrase)
		POSS PRON (regular possessive pronoun)
		REFL PRON (reflexive possessive pronoun)
2.	DEF of PR (definiteness of possessor)	PN (proper name)
	DEF of PM (definiteness of possessum)	DEF (definite)
		POSS (possessed)
		INDEF (indefinite)
		ZERO-MARKED
3.	Animacy of PR (animacy of possessor)	HUMAN
	Animacy of PM (animacy of possessum)	ABSTR ANIM (abstract animate)
		ANIMAL
		COLLECT (collective)
		TEMP (temporal)
		SPATIAL
		INANIM (inanimate)
		INALIEN (inalienable)
4.	Topicality of PR (topicality of possessor)	GIVEN
	Topicality of PM (topicality of possessum)	NEW
5.	Notions (semantic notions of possession)	OWNER (ownership)
		KINSHIP
		PART-WHOLE
		SOCIAL ROLE
		CONTROL
		AUTHOR
		ABSTRACT
		ATTRIBUTIVE
		LOCATIVE
		TEMPORAL
6.	PR length (possessor length)	syllable count
	PM length (possessum length)	
7.	Additional information	SG (singular)
		PL (plural)
		COUNT (countable)
		MASS
		CONCR (concrete)
		ABSTR (abstract)
		PR (possessor)
		PM (possessum)
8.	Period (for the diachronic corpus only)	I. 1250–1350
		II. 1350–1450
		III. 1450–1550
		IV. 1550–1700

9.	Genre (for the diachronic corpus)	LEGAL
		RELIGIOUS
		PROFANE
10.	Register (for the modern corpus)	LITERARY
		PRESS
		BLOG

As regards the second variable, definiteness, it is explicitly marked morphological definiteness that is invoked here rather than semantic definiteness. It is well known, however, that definiteness is intrinsically connected to the conceptual notions of familiarity and identifiability (Hawkins 1978; C. Lyons 1999), as well as to the accessibility status of the referent (Ariel 1988; 1994; 2014). Thus, besides purely morphological categories (definite, indefinite), I also include proper name referents, in accordance with the accessibility scale operationalized by O'Connor, Maling, and Skarabela (2013: 98). Proper name possessors are considered the most accessible and familiar, followed by explicitly definite NPs and possessed NPs. Possessor phrases tagged as POSS include the so-called nested genitive constructions, where the possessor of one possessive NP is itself a head noun (possessum) in another NP, as with *syster* 'sister' in (173). Such possessors are considered to be at the same level of accessibility (or what I call here definiteness) as explicitly definite NPs.

(173) *Martin-s*   **syster-s**   *älskare*
       Martin-S   sister-S   lover
       'Martin's sister's lover' (SV, Nesser 2013)

Further, I distinguish indefinite NPs, namely singular NPs with an indefinite article, as in (174), or plural NPs with no articles (since there is no plural indefinite article in Danish or Swedish), as in (175). In this category I also include examples of singular NPs modified by adjectives but no indefinite article, as in (176). Such examples are not very common, since the presence of adjectives usually requires an article, but they do occasionally occur in predicative position or as prepositional objects.

(174) *för*   *att*   *hjälpa* **besättning-en på**   *ett*   *fartyg*
       for   to   help   crew-DEF   on   INDF   ship
       'to help the crew of a ship' (SV, Thorneus & Nilsson 2017)

(175) *en*   *stor*   *forskel*   *for*   **menneske-r-s**   *livskvalitet*.
       INDF   big   difference   to   person-PL-S   life.quality
       'a big difference to people's quality of life.' (DA, Weirup 2016)

(176) *blev*   **en**   **af**   **de**   **mest**   **magtfuld-e**   **person-er**   **i**
       became   one   of   DEF   most   powerful-WK   person-PL   in

dansk   kulturliv.
Danish   culture.life
'[...] became one of the most powerful people in Danish cultural life.'
(DA, Bludnikow 2018)

The next variable, animacy, has already been discussed in section 4.1.1 (see Table 7 for the animacy scale used in this project). One tag added that is separate from the animacy scale is 'inalienable', which I use to mark possessive NPs with PART–WHOLE relations that can be seen as inalienable, specifically body parts of people and animals. Similarly, the fourth variable, topicality, has been discussed in section 4.1.3. As stated there, given referents are second-mention referents, while new referents are first-mention referents.

The fifth variable in Table 13, the semantic notions of possession, includes ten possessive relations. In (177) I repeat example (26) from Chapter 2 (section 2.1; see also Figure 1 in that section), where all of the relations are listed together with their simplified definitions and examples.

(177)   *Notions of possession*
    1. OWNERSHIP (PR has/owns PM)
      Anne's house — Anne has a house

    2. KINSHIP (PR is kin to PM)
      Anne's sister — Anne is kin to her sister

    3. PART–WHOLE (PM is part of PR)
      Anne's hand — the hand is a part of Anne

    4. SOCIAL ROLE (PR has a non-kin relationship to PM)
      Anne's boss — Anne has a boss

    5. CONTROL (PR has PM at their disposal)
      Anne's office — Anne has the office at her disposal

    6. AUTHOR (PR produces/writes/tells PM)
      Anne's letter — Anne wrote the letter

    7. ABSTRACT possession (PR Verb(PM))
      Anne's advice — Anne advised

    8. ATTRIBUTIVE possession (PR is Adj(PM))
      Anne's freedom — Anne is free

    9. LOCATIVE possession (PM is located in PR)
      Stockholm's streets — the streets are located in Stockholm

    10. TEMPORAL possession (PM is set in PR)
      yesterday's newspaper — the newspaper is from yesterday

The annotation of the possessive notions was at times problematic, especially when it came to unravelling the differences between ATTRIBUTIVE and ABSTRACT possession, since both

require an abstract NP as a possessum. The main criteria in differentiating these two notions is that ATTRIBUTIVE expressions may be rephrased using an adjective derivative from the PM phrase, while ABSTRACT expressions may be rephrased with a verb derivative from the PM phrase (as in the examples in points 4 and 10 above). It follows that possessum phrases in ABSTRACT possession are usually deverbal nouns that most commonly refer to actions, as in (178), while possessum phrases in ATTRIBUTIVE expressions are usually non-deverbal nouns referring to feelings, traits, and characteristics, as in (179).

(178) *samfund-et-s   demokratisk-e   udvikling*
      society-DEF-S democratic-WK   development
      'society's democratic development' (DA, Morsing 2017)

(179) *det   kinesisk-a   brädspel-et-s   komplexitet*
      DEF   Chinese-WK   board.game-DEF-S   complexity
      'the complexity of the Chinese board game' (SV, Mattsson 2016a)

If a transformation to a verb or adjective is not possible, as in *landets historia* 'the country's history' or *Milas eventyr* 'Mila's adventures', a decision has to be made whether the PM phrase is describing a static process or a dynamic action. 'The country's history' is thus classified as ATTRIBUTIVE possession because it is a part or a characteristic of a certain country and is certainly not an action, while 'Mila's adventures' is classified as ABSTRACT possession since the PM phrase implies a dynamic action rather than a static trait. I tried to be as consistent as possible in making such arbitrary decisions.

The next variable is phrase length, which is operationalized using syllable counts. The factor of length in genitive variation, often referred to as the Principle of End Weight (see e.g. Hinrichs & Szmrecsanyi 2007: 438), stands on the premise that the longer constituent follows the shorter one in a possessive NP. It is argued that speakers prefer the possessive construction in which the longer of the two phrases (either the possessor or the possessum phrase) occurs second, as in (180) and (181).

(180) *Rydén-s   efterlämnad-e   anteckning-ar*
      Rydén-S   left-WK   note-PL
      'the notes left by Rydén' (lit. 'Rydén's passed down notes') (SV, Ohlsson 2017)

(181) *ende-n   af   den   lille   blind-e   vej*
      end-DEF   of   DEF   small.WK   blind-WK   way
      'the end of the small cul-de-sac' (DA, Thomsen 2018)

Length might be an important factor in the selection of a possessive, since the order of the possessor and possessum phrases is reversed in the s-genitive and prepositional constructions. It is thus expected that the s-genitive will be preferred with the combination *short possessor – long possessum*, and PPs will be preferred with the combination *short possessum – long possessor*. The length is counted in syllables. These are defined as components that include one vowel, namely components of type V, CV, VC, or CVC. The number of consonants

around the vowel is unlimited, so that even components of type CCVCC, as in the Swedish word *snabbt* 'quick', still form only one syllable. Some studies making use of the length variable operationalize it by counting graphemic words, since this is the easiest and most convenient way to measure phrase length (see e.g. Kreyer 2003; Berlage 2014). There are also studies that make use of syllable counts instead, specifically studies where prosodic properties and phonological complexity need to be taken into consideration (see e.g. Pinker & Birdsong 1979; McDonald, Bock & Kelly 1993; Benor & Levy 2006). I decided to use syllable counts for Danish and Swedish for two main reasons. Firstly, compounding is a very productive means of coining words in these languages, resulting in a large discrepancy between the lengths counted in syllables and in words. In (182) and (183) two one-word possessors are shown; the first, however, is much longer than the second (six syllables vs. one syllable).

(182) *ett*   *reportage*   *om*   ***förhållande-n-a***   ***för***   ***civilbefolkning-en***
       INDF   documentary   about   condition-PL-DEF.PL   for   civilian.population-DEF
       'a documentary on the conditions of the civilian population' (SV, Lindqvist 2017)

(183) *åsikt-er-na*   *som*   *kommer*   *från*   ***män-s***   ***mun***
       opinion-PL-DEF.PL   that   come   from   man.PL-S   mouth
       'the opinions that come from men's mouths' (SV, Crobinlarsson 2017)

As shown above, the use of word counts might be too great a simplification in the case of Danish and Swedish. Secondly, note that the definite article in Danish and Swedish is a suffix attached to the head noun if the latter is not accompanied by any adjectives or other modifiers. The indefinite article, on the other hand, is always a separate word; compare: *mannen* 'the man' (one word, two syllables), *en man* 'a man' (two words, two syllables). Syllable counts are thus a more reliable means of measuring phrase length in the present project.

Variables 7 and 8 (see Table 13) provide additional, and quite straightforward, syntactic and semantic information. The last three variables include the time period of the corpus texts, which is an important factor only for the diachronic study (Chapter 5), as well as the genre and register of the texts. In the next section, I briefly describe the various statistical tests used throughout the next two chapters.

4.4 Statistical tests

What follows is a short description of the statistical tests used in the analysis in Chapters 5 and 6. In all of the statistical tests a *p*-value lower than 0.05 is taken as the threshold of statistical significance, as is customary in linguistic studies (see e.g. Elliott & Woodward 2007; Levshina 2015).

The chi-square test of independence
This is a simple test used for contingency tables with two variables, for example, in comparing the animacy values in two possessive expressions (when the two variables are animacy and possessive expression). The test of independence determines whether there is an association between categorical variables, namely, whether the variables are independent of

each other or related. The null hypothesis always states that there is no association between the two variables. If the reported *p*-value is lower than 0.05 the null hypothesis can be rejected and we can state that there is a significant relationship between the variables. The values reported for this test are: chi-square (χ^2), degrees of freedom (*df*), and the *p*-value. This test is chosen because it is perfectly suited for categorical (non-numerical) data and because it utilizes contingency tables, which provide a good visualization of the possible association between the variables. See Elliott and Woodward (2007: 114–125) for a detailed description.

T-test (two-tailed and paired t-tests)

The *t*-test is used to compare means. The two-tailed *t*-test is used to compare means from two populations (groups) based on independent samples, while the paired *t*-test is used to compare means from two different groups based on samples that are paired in some way. Only numerical data can be compared using these tests, such as frequencies or length measured in syllables. The null hypothesis states that the group means are the same. If the *p*-value is lower than 0.05, the hypothesis is rejected and we can state that the means are significantly different from each other. The reported values are the *p*-value and, in some cases, the *t*-statistic. In the present project the *t*-test is used to compare means of possessor and possessum length, as well as to compare the proportions of certain types of referent (human, definite, singular, etc.) in uses of the s-genitive and in overall use (see Chapter 5). For more on *t*-tests see Elliott and Woodward (2007: 54–75).

Classification and Regression Tree Analysis (CRT)

CRT is a method for classification of data based on an algorithm that assesses the association between the dependent variable (response variable) and a number of independent variables. In the first step, the algorithm chooses the variable that has the strongest association with the dependent variable (e.g. the presence of the s-genitive). In the second step, the algorithm splits the data into two subgroups based on the chosen independent variable. These two steps are then repeated for each subgroup until no other significant associations between variables can be made. The results are presented and visualized in a tree-like structure, where every split of the data forms 'branches' and 'leaves'. To split the data the algorithm uses the same chi-square test of independence that was described above. This method is also called *decision trees*, as following the data splits from the very first one allows one to see the 'decisions' that the algorithm makes. The CRT method also makes it possible to rank the independent variables according to their relative importance in the model. Lastly, CRT provides information on the accuracy of the model, namely information about how successful the algorithm is at predicting membership of cases. For this project, the CRT will be used with a number of independent variables (see Table 13 in section 4.3.2) to see how they influence the selection of a particular possessive construction (s-genitive vs. prepositional phrases or regular pronouns vs. reflexive pronouns). For a detailed description see Levshina (2015: 291–297).

Binary logistic regression

Binary logistic regression is similar to CRT in that it is also used to determine how impactful the independent variables are on the dependent (response) variable. However, instead of

showing actual data splits, logistic regression produces a model that predicts the probability of an event occurring given the independent variables. In a binary regression, the response variable can have only two values (hence binary), usually described as 'yes' and 'no', or '0' and '1'. In the present project, binary logistic regression is used in the study on contemporary Danish and Swedish (Chapter 6) to estimate the probability of the s-genitive occurring based on a list of independent variables such as animacy, definiteness, length, and so on. The response variable can thus be described as 'yes: s-genitive occurs' and 'no: s-genitive does not occur'. The latter can be reformulated into 's-genitive does not occur, but prepositional construction does', because the prepositional construction is the only other choice. This method also provides the relative importance of variables that influence the response variable, but unlike CRT, it also calculates odds ratios that precisely measure the importance of an independent variable for the outcome (the probability of the s-genitive occurring as opposed to prepositional phrases). The reported values are, among others, the B Coefficient (to be understood as a rate of change), standard error, degrees of freedom, significance (*p*-value) and odds ratios. For an introduction to binary logistic regression see Elliott and Woodward (2007: 209–222).

In this chapter, I have discussed the theoretical and methodological foundations of the empirical studies, which will be presented in detail in the following two chapters. In the next chapter, I present the results of the diachronic study of possessive expressions in Danish and Swedish texts written between 1250 and 1700.

Possessive constructions in the history of Danish and Swedish (1250–1700)

5.1 Introduction

In this chapter, I present the results obtained from the annotated corpus of Danish and Swedish texts written between 1250 and 1700. First, the general results are presented, namely the characteristics and relative frequencies of each of the possessive expressions. In 5.3, the constraints that characterize the use of the genitive construction are studied in detail. I discuss the correlations and interdependencies between the genitive and particular constraints, such as animacy, definiteness, topicality, length of the phrase, and others. In 5.4, the semantic notions of possession identified in the corpus of historical texts are explored. I show that a connection can be established between semantic notions and particular possessive constructions. In section 5.5, all of the constraints discussed previously are brought together in a Classification Tree Analysis, which shows the importance of the factors favouring particular possessive constructions in the annotated corpus.

5.2 General results

The relative frequencies of the possessive expressions collected from the diachronic corpus, namely the Danish and Swedish texts written between 1250 and 1700, are presented in Tables 14 and 15.

Table 14. Frequencies of Danish possessive expressions over time

Period	genitive	possessive pronoun	reflexive pronoun	prepositional phrases	Total
I. 1250–1350	114	158	128	0	400
	28.5%	39.5%	32.0%	0.0%	100.0%
II. 1350–1450	93	206	89	12	400
	23.3%	51.5%	22.2%	3.0%	100.0%
III. 1450–1550	130	177	87	6	400
	32.5%	44.2%	21.8%	1.5%	100.0%
IV. 1550–1700	359	324	95	22	800
	45.0%	40.5%	12.0%	2.5%	100.0%
Total	696	865	399	40	2,000
	34.8%	43.2%	20.0%	2.0%	100.0%

Table 15. Frequencies of Swedish possessive expressions over time

Period	genitive	possessive pronoun	reflexive pronoun	prepositional phrases	Total
I. 1250–1350	185	121	83	11	400
	46.3%	30.3%	20.7%	2.7%	100.0%
II. 1350–1450	132	122	129	17	400
	33.0%	30.5%	32.2%	4.3%	100.0%
III. 1450–1550	133	159	99	9	400
	33.3%	39.8%	24.6%	2.3%	100.0%
IV. 1550–1700	297	316	167	20	800
	37.0%	39.5%	21.0%	2.5%	100.0%
Total	747	718	478	57	2,000
	37.4%	35.9%	23.9%	2.8%	100.0%

In the first three periods, each spanning 100 years, 1,200 instances of possessive expressions were annotated in each language, divided equally between the three periods. As described in section 4.2.1, Periods I–III (1250–1550) correspond to the Old Swedish and Old Danish epochs. The last period studied here, 1550–1700, spans 150 years and corresponds to the Early Modern Swedish (sv. *äldre nysvenska*) and the Early Modern Danish (da. *ældre nydansk*) epochs. In the last period, 800 instances of possessive expressions were annotated.

Analysing the make-up of adnominal possessive expressions used in the corpus texts in each period, we can see that the proportions of all possessive expressions remain relatively constant, though not unchanged. In Swedish, the proportion of genitive constructions drops significantly, from over 46% in the first period to 37% in the last period. In Danish, on the other hand, the proportion of genitives is lower than in Swedish to begin with (only 28.5% of all possessives in the first period, compared with 46% in Swedish), but it rises consistently in the last two periods to reach 45%. Possessive pronouns are generally more frequent in the Danish corpus; in the second period regular pronouns constitute a majority of all possessives used. In Swedish, possessive pronouns are less frequent in the first two periods, but in the last two periods both languages display similar frequencies. Reflexive possessive pronouns are on average slightly more frequent in Swedish. The two corpora, however, show quite significant differences in the use of reflexives in each period; this will be explored in more detail in section 5.4. The use of prepositional phrases that express possession (or possession-related concepts) is only beginning to emerge in Old Danish and Old Swedish, hence the low frequency of this construction. Overall, possessive prepositional phrases are more frequent in Swedish, and they occur in the Swedish corpus even in texts from the first period. In the Danish corpus, the first instances of possessive PPs occur in the second period. In the following sections I will take a closer look at each construction, focusing in particular on the position of the constituents relative to the head noun.

5.2.1 Genitive construction
The first characteristic of the use of the genitive construction in Old Danish and Swedish that needs to be addressed is the variety of forms of the genitive. The ending -*s*, which is found in modern Continental Scandinavian languages and other Germanic languages in the form of the

s-genitive, was undergoing a degrammaticalization process during the periods studied here (see Norde 1997; 2006; 2011). The ending -*s* was originally the inflectional ending of singular masculine and neuter nouns with a-stems, as in (184) and (185). The ending slowly spread to all other nouns, first with other masculine and neuter nouns, later with feminine nouns, and finally even with plural nouns of all genders (Piotrowska 2017: 14–17; see also Norde 1997 for a detailed study of s-genitive development in Swedish; see Perridon 2013 for a study of s-genitive development in Danish).

(184) *Sitir man a   kirki-u   wægh. ella aa   **þing-s**   wægh [...]*
       sits   man on   church-OBL way   or on   ting-S   way
       'If one sits on the way to the church or on the way to the ting [...].' (SV_DL, Period I)

(185) *utæn iordh. thet   wæræ i   **kunung-s**   wald*
       except land that   was in   king-S   power
       'except for the land that was in the king's power' (DA_ErL, Period I)

In the corpus, besides the ending -*s*, we find a selection of the older genitive case endings as well as bare forms of nouns (i.e. weak nouns in their oblique or base form) in a possessor role. Table 16 presents the proportions of the ending -*s* against other genitive endings in the corpus in Danish and Swedish. The last period studied, 1550–1700, is not included in the table, as no genitive endings other than -*s* are found in either language.

Table 16. Genitive case endings in the Old Danish and Old Swedish texts

GENITIVE ENDINGS	Danish		Swedish	
Period	ending -*s*	other forms	ending -*s*	other forms
I. 1250–1350	78	36	115	70
	68.4%	31.6%	62.2%	37.8%
II. 1350–1450	80	13	89	43
	86.0%	14.0%	67.4%	32.6%
III. 1450–1550	127	3	97	36
	97.7%	2.3%	72.9%	27.1%
Total	285	52	301	149
	84.6%	15.4%	66.9%	33.1%

In the first period, the older genitive forms are still quite frequent in both Swedish and Danish texts, where forms other than the ending -*s* make up around a third of all genitives. The vast majority (i.e. 88%) of feminine nouns in the possessor role in the first period occur with the older genitive endings, as in (186). Note that in (186) the neuter noun *lanzsins* 'the land's' exhibits double case marking, where both the noun and the suffixed definite article take case endings.

(186) *þön   uighþu-s   sum   lan-ʒs-in-s   æru   lagh   ok*
       3PL   marry-REFL   as   land-S-DEF-S   are   law   and

kirki-unna		*rættær*	*ær*
church-DEF.GEN		right	is

'They were married as the land's laws are and the church's right is.'
(SV_OgL, Period I)

It is not uncommon, however, to find both the original genitive ending and the spreading s-ending with the same feminine noun within one text, as examples (187–190) illustrate (see Norde 1997: 121–124 for a detailed account of secondary -*s* in feminine nouns). In Period I, all instances of feminine nouns with the suffixed definite article, as in (189), have their original genitive case inflection.

(187)
Gangir	*man*	*meþ*	*eþ*	*fori*	*hoor.*	*ella*	***frænzsam-a***	*spiæl [...]*
goes	man	with	oath	for	adultery	or	kinship-OBL	violation

'If one takes an oath that one did not commit adultery or kinship's violation [...].'
(SV_DL, Period I)

(188)
þæn	*eþir*	*stande*	*oc*	*böte*	*hoor*	*ella*	***frænzæmi-s***	*spiæl*
then	oath	stands	and	pays	adultery	or	kinship-S	violation

'Then the oath is valid and one pays a fine for adultery or kinship's violation.'
(SV_DL, Period I)

(189)
iosep	*egipt-æ*	*lan-z*	*hærra:*	*ok*	***væruld-enna***	*helsara [...]*
Joseph	Egypt-OBL	land-S	lord	and	world-DEF.GEN	saviour

'Joseph, the land of Egypt's lord and the world's saviour [...].' (SV_Bur, Period I)

(190)
han	*gaf*	*ogho-n*	*enne*	*blinde*	*fru*	*som*	*hæt*	*sinticem*
3SG.M	gave	eye-PL	INDF	blind	woman	who	was.called	Sinticem

baþe	*tel*	*himiriki-s*	*lius*	*ok*	***værul-z***
both	to	heaven-S	light	and	world-S

'He gave eyes to a blind woman who was called Sinticem, both in celestial light and terrestrial light.' (SV_Bur, Period I)

Note that all the examples above come from Swedish texts. The relatively high number of older genitive endings in Danish in the first period stems from the fact that one particular text, *Skanske Kirkelov* (Scanian Church Law), is dedicated solely to matters of the church. The token frequency of feminine genitival endings is relatively high, as the noun *kirka* 'church' is repeatedly used as a possessor in its oblique form *kirkiu* 'church.OBL'. No other instances of feminine possessors with older case endings occur in Danish texts from the first period; thus the type frequency of such endings is actually quite low.

Similarly, almost all plural nouns (97%) in the possessor role occur with the original case endings in Period I, as in (191). The noun 'man' in the plural is one that received the ending -*s* relatively late, but in the Danish corpus, already in the first period we find an example of 'men' with the s-genitive, as in (192).

(191)

lyte	*scal*	*man*	*böte*	*æftær*	*goþræ*	***man-na***	*a syn*
blemish	shall	man	pay	after	good.PL	man-GEN.PL	view

'For causing blemish (to someone) one shall pay a fine in accordance with the good men's opinion.' (DA_SL, Period I)

(192)

Hør	*thu*	*all-æ*	***mæn-z***	*frughæ*	*ac*	*bith*	*thic*
hear	2SG	all-PL	man.PL-S	lady	1SG	beg	2SG

miscundæ	*mec*	*hialp*	*mec*	*brat [...]*
pardon	1SG	help	1SG	soon

'Do you hear, all men's lady, I beg you, pardon me, and help me soon [...].' (DA_ML, Period I)

Only 14% of masculine possessors occur with the original genitive case endings. All such examples involve weak masculine nouns such as *hærra* 'lord.OBL' or *bondæ* 'yeoman.OBL', which on occurring with a suffixed definite article receive the ending *-s*, as in *bondæ-n-s* 'yeoman-DEF-S', since this is the only ending available for the definite article in the genitive with masculine and neuter head nouns.

In the second period, a significant drop in the frequency of case endings other than *-s* can be observed in Danish, as shown in Table 16, but not in Swedish.[18] In Danish, only weak nouns occasionally occur in the oblique form, as in *hærræ* 'lord.OBL'. However, already in this period, weak nouns in Danish texts receive the secondary s-ending that attaches to the oblique form, as in (193).

(193)

At	*han*	*var*	*en*	*biscop*	*oc*	*var*	*glømen,*	*oc*	*vilde*
that	3SG.M	was	INDF	bishop	and	was	forgetful	and	wanted

ey	*gøme*	***vorherræ-s***	*logh.*
not	keep	our.lord.OBL-S	law

'That he was a bishop and he was forgetful, and did not want to maintain Our Lord's law.' (DA_Pouel, Period II)

In Swedish, on the other hand, original genitive case endings are abundant in the second period. All feminine nouns are still marked with the older case endings (see example (194)), as well as a majority (85%) of plural nouns (see example (195)).

(194)

Tha	*synti-s*	***quinn-onna***	*hwifwir*	*allir*	*blodhoghir*	*ok*
then	see-REFL	woman-DEF.GEN	scarf	all	bloody	and

water	*aff*	*blodh*	*swa*	*at*	*blodh-in*	*flöt*	*nidhir*	*vm*
wet	of	blood	so	that	blood-DEF	flew	down	about

quinn-onna	*kind-ir.*
woman-DEF.GEN	cheek-PL

---

[18] This result confirms earlier observations that the reduction of case inflection occurred earlier in Danish than it did in Swedish (see in particular Ringgaard 1986; see also Skrzypek, Piotrowska & Jaworski 2021).

'Then the woman's scarf seemed all bloodied and wet with blood so that the blood flew down the woman's cheeks.' (SV_Jart, Period II)

(195) *Tha*   *hördhe en*   *orm*   *som*   *haffdhe*   *skylt*   *sik*   *i*   *mwr-en*
      then   heard   INDF   snake   which   had   hidden   REFL   in   wall-DEF

      häst-anna   *bang*   *oc*   ***riddar-ana***   *stiim*   *oc*   *kröp wt*
      horse-DEF.GEN.PL   rumble and   knight-DEF.GEN.PL   noise   and   crawled out
      'Then a snake, which had hidden itself in the wall, heard the horses' rumble and the knights' noise and crawled out.' (SV_SVM, Period II)

Weak nouns in the singular also occur in the oblique form in the Swedish corpus for this period, as in (196).[19]

(196) *tha*   *war*   *en*   *fagher*   *äng*   *widh*   *en-s*   *rik-x*   ***riddar-a***
      then   was   INDF   fair   meadow   by   INDF-S   rich-S   knight-OBL

      hws.   *om kring*   *mwrath*   *mz*   *gambl-om*   *mwr*
      house   around   walled   with   old-DAT   wall
      'Then there was a fair meadow by a rich knight's house which was walled around with an old embattlement.' (SV_SVM, Period II)

In Period III there are only three instances of genitive endings other than *-s* in Old Danish (see Table 16), while in Old Swedish there is still a considerable number of such endings (36 instances, ca. 27% of all genitive endings in this period). The only Danish examples here include the bare form of the feminine noun *jomfrwe* 'virgin' as a possessor and two instances of proper names in their base form, i.e. *ihesu* 'Jesus' and *katherine* 'Katherine'. In Swedish, feminine nouns and weak nouns are still occasionally marked with their original case endings, although the ending *-s* is starting to appear more often, as in (197). Nevertheless, Swedish plural nouns are in general marked with older genitive case endings in this period; the noun 'man' in the genitive plural occurs consistently and exclusively in its older form, as in (198).

(197) *Tiill*   *thetta*   *samtykte*   *jason*   *i*   *all-a*   ***herr-a-s***   *närwaro*
      to   DEM   agreed   Jason   in   all-PL   lord-PL-S   presence
      'Jason agreed to this in the presence of all the lords.' (SV_Troja, Period III)

(198) *thenna* *wader-en*   *war*   *wndy*   *mars*   *hedn-a*   ***man-na***   *strid-z*
      DEM   ram-DEF   was   under   Mars   heathen-PL   man-GEN.PL   war-S

      gud-z   *gömo*   *oc*   *bewaran*
      god-S   watch   and   protection

---

[19] Note that in example (196) each element in the NP is inflected together with the article; this indicates that the ending *-s* was not yet fully grammaticalized as a phrase marker which occurs only once in an NP.

'This ram was under Mars, heathen men's god of war's watch and protection.' (SV_Troja, Period III)

The results presented here indicate that, without doubt, the s-genitive grammaticalized earlier in Danish than it did in Swedish. The ending *-s* has been shown to spread to nouns that previously took other genitive endings (such as weak, feminine, and plural nouns) earlier in Danish: already in the 13th century such referents occurred predominantly with *-s*, which was not the case in Swedish (see also Perridon 2013).

The second characteristic of the genitive construction that needs to be discussed is the position of the possessor phrase. In present-day Danish and Swedish, the possessor phrase is always placed before the head noun (see section 3.1.1 in Chapter 3), but in the historical texts we encounter genitival possessor phrases that are placed either before or after the head noun. It is important to note that the placing of possessors in preposition was not yet obligatory in the periods studied here, although the process towards a fixed prenominal position was well underway. Already in the runic inscriptions from the Viking Age (ca. 800−1200), the placing of genitival possessors was prepositional more often than the placing of pronouns, for instance, as Stroh-Wollin (2015: 14–15) points out. The hypothesis that Stroh-Wollin presents is that, in the Viking Age, the word order *noun first, modifier second* was the unmarked order in Old Norse (cf. Börjars, Harries & Vincent 2016), and the fronting of modifiers was a means to emphasize them. Further, Stroh-Wollin points out that the fronting of modifiers was connected to the obligatorification of definiteness marking, and that semantically definite noun phrases were first to be affected by the word order change (from *noun first* to *modifier first*) (Stroh-Wollin 2015: 15).

This hypothesis is partly borne out by the data in the present study. In the corpus of Old Swedish and Old Danish, postposed possessors in the genitive occur essentially only in Period I (1250–1550), as in (199) and (200). Outside that period, there is only one example of such a construction, in a Swedish text from Period II. In Table 17, the frequencies of pre- and postposed possessors in the genitive from Period I are presented. There is no significant difference between the Swedish and Danish texts in this case; postposed genitival modifiers constitute ca. 9.4% of all genitives in both corpora.

(199) *Værþær*   *fæsti*   *kon-æ*   **man-ss**   *takin* *a*   *IX*
becomes   betrothed   woman-OBL   man-S   taken owe nine

      mark-ær   *þæn* *skyldastæ*
      mark-PL   DEF guilty
      'If a man's betrothed is taken, the guilty man owes nine marks.' (SV_AVL, Period I)

(200) *hun*   *wissæ* *at* *han* *war* *þræl* *oc* *waræ* *han* *utæn*
3SG.F knew that 3SG.M was slave and was 3SG.M outside

      gardzlith   **bondæ-n-s**
      estate   yeoman-DEF-S
      'She knew that he was a slave and that he was outside the yeoman's estate.' (DA_ErL, Period I)

Table 17. Position of possessors in the genitive in Period I (1250–1350) of Old Danish and Old Swedish

Language	Preposed possessor	Postposed possessor	Total
Danish	104	10	114
	91.2%	8.8%	100.0%
Swedish	167	18	185
	90.3%	9.7%	100.0%
Total	271	28	299
	90.6%	9.4%	100.0%

The corpus constains some examples of ellipsis which may look like postposed genitival possessors, as in (201) and (202). In these examples, the first possessive NP is realized with a preposed genitive, while in the second possessive NP the head noun is omitted. I have disregarded such cases in Table 17, as they are not examples of the construction *head noun + possessor phrase*.

(201) *þa   skal   til   þing-xs   fara   ok   taka   kunung-x   dom*
then   shall   to   ting-S   travel   and   take   king-S   verdict

ælla   laghman-zs
or   judge-S
'Then he shall travel to a ting and receive the king's or the judge's verdict.'
(SV_OgL, Period I)

(202) *oc   ey   för   göræ   gen   konung-s   ræte   oc   ærchibiscop-s*
and   not   may   do   against king-S   right   and   archbishop-S
'And he may not act against the king's and the archbishop's law.' (DA_SL, Period I)

Further, since the majority of the possessors in the genitive are already preposed in the oldest period studied here, there are no examples of fronting as a means to emphasize a referent, as pointed out by Stroh-Wollin (2015). For instance, within the same text I find examples like (203) and (204), in which either the modifier or the head noun is fronted in a very similar context. One might argue that in (203) 'mother' is fronted because it is the topicalized subject, but, interestingly enough, in this example the head noun 'children' is semantically definite and is the discourse topic of the text passage. In example (204), on the other hand, the fronted possessor 'man' is not topicalized and the reference is not specific.

(203) *Dör   mothær   börnæ.   tha   ær   sammæ   ræt   vm*
dies   mother   child.PL.OBL then   is   same   law   about

alt   skifti
all   division
'If the children's mother dies, the law is the same for the estate division.'
(DA_SL, Period I)

(204) *Dör* **man-z** *son* *oc* *hauir* *han* *ey* *barn* *thær* *rætær*
       dies   man-s   son   and   has   3SG.M   not   child   that   rightful

aruæ *ær [...]*
heir   is
'If a man's son dies and he has no child who is his rightful heir [...].'
(DA_SL, Period I)

Moreover, there are no specific traits of the postposed possessors in comparison with the preposed possessors that could potentially tell us more about the change of the word order. In all examples of postposed genitives found in the corpus, the possessor is always human, but in that period human possessors constitute a majority in all of the examples of genitive use (53.0% in Old Swedish and 58.8% in Old Danish). Thus, the animacy of the possessor is not likely to be an important factor here. The NPs with a postposed possessor are mostly examples of the KINSHIP relation or OWNERSHIP, but the examples are too few to discern any patterns. The only observable potential difference is that most of the postposed possessors found in the corpus of Old Swedish and Old Danish are semantically indefinite and have a non-specific reference, as in (205). To be exact, 11 out of 18 postposed possessors (61.1%) in Swedish are semantically indefinite, and 6 out of 10 (60.0%) in Danish. The number of examples may not be very impressive; nonetheless, the proportion (ca. 60%) is significant, as the proportion of semantically indefinite possessors in the first period is 37.8% in Swedish and 37.7% in Danish. Similarly, if we take into consideration all three periods of Old Danish and Swedish (i.e. 1250–1550), semantically indefinite possessors in the genitive constitute 33.3% in the Swedish texts and 31.7% in the Danish texts. We can thus conclude that postposed indefinite and non-specific possessors are overrepresented in the corpus, which speaks in favour of the hypothesis that semantically definite possessors were the first to be preposed (cf. Stroh-Wollin 2015).

(205) *Dræpær* *maþær* *þrél* **man-ss**. *böte* *firi* *mark-um* *þre-m*
       kills   man   slave   man-s   pays   for   mark-DAT.PL three-DAT
       'If a man kills another man's slave, he pays for it with a fine of three marks.'
       (SV_AVL, Period I)

In conclusion, it seems that the change to fixed preposition of genitival modifiers was already more or less established at this stage of language development. It is, however, interesting to see how the position of pronouns compares. The position of pronouns is analysed in the next section.

5.2.2 Pronominal constructions

As described in section 3.1.3, Danish and Swedish use both regular and reflexive possessive pronouns. Third person reflexive possessive pronouns are co-referential with the subject within the same clause, while third person regular pronouns refer to entities other than the subject within the same clause, or to referents outside the clause in which they appear.

Tables 18 and 19 show the raw frequencies of pre- and postposed pronouns, first regular and then reflexive, in the oldest period studied here: 1250–1350. It is important to note that, while in Period I there are some instances of postposed regular pronouns and relatively frequent instances of postposed reflexive pronouns, there are virtually no such examples in later periods. Thus, by ca. 1400 the prenominal position of pronouns is well established.

Table 18. Position of regular possessive pronouns in Period I (1250–1350) of Old Danish and Old Swedish

Language	Preposed pronoun	Postposed pronoun	Total
Danish	145	13	158
	91.8%	8.2%	100.0%
Swedish	90	31	121
	74.4%	25.6%	100.0%
Total	235	44	279
	84.2%	15.8%	100.0%

Table 19. Position of reflexive possessive pronouns in Period I (1250–1350) of Old Danish and Old Swedish

Language	Preposed reflexive	Postposed reflexive	Total
Danish	60	68	128
	46.9%	53.1%	100.0%
Swedish	49	34	83
	59.0%	41.0%	100.0%
Total	109	102	211
	51.7%	48.3%	100.0%

As regards regular possessive pronouns, they are more often postposed in Swedish than in Danish (25.6% compared with 8.2%). Overall, however, they are overwhelmingly prenominal already in the first period. Based on the frequency, I assume that in the oldest texts studied here we encounter a pronominal system in which preposition is already reclassified as the unmarked order of regular pronouns. In the corpus there are only two texts in which postposed regular pronouns constitute a majority of all uses of pronouns; these are the Swedish texts *Äldre Västgötalagen* and *Dalalagen*. The language of both texts exhibits some archaic traits compared with other legal texts from the same period (Skrzypek 2012: 17), especially those written in Danish.[20] However, even in these archaic codices there are no examples of fronted pronouns that could be described as pragmatically motivated, that is, prepositioning which signals an important or especially salient referent. In this vein, Börjars, Harries, and Vincent (2016: e14) give examples of Icelandic prenominal pronouns used with explicit contrastive emphasis, as in (206).

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[20] The differences observed in these texts may also stem from dialectal variety, which is also attested in present-day dialects of Scandinavian. The northern dialects exhibit a much higher frequency of postposed pronouns (Delsing, Vangsnes & Holmberg 2003; Vangsnes 2014).

(206) at   **minn**   **faðir** væri   eptirbát   **þins**   **fǫður**
      that   1SG.POSS   father   was   after.boat   2SG.POSS.GEN   father.GEN
      'that my father trailed in the wake of yours' (Börjars, Harries & Vincent 2016: e14)

No such examples with clear contrast are found in the present corpus. The only example of a regular pronoun that might be prenominal for pragmatic reasons is found in the Danish text *Skånelagen*, as in (207).

(207) *Hauir man baþe athul   kunu   börn   oc*
      has   man   both   legitimate   wife.OBL   child.PL   and

      slökifrith   born   oc   wil   han   giuæ   sin-um
      illegitimate   child.PL   and   wants 3SG.M give   REFL.POSS-DAT

      slökifriþ-u   born-um   nokat   tha   fari   han   a
      illegitimate-WK   child.PL-DAT.PL   something   then   travels 3SG.M to

      *lan-zs-tingh oc   liuse   at   þe   ære   **hans**   **born***
      land-S-ting   and   proclaims   that 3PL   are   3SG.POSS.M   child.PL
      'If a man has both legitimate and illegitimate children and he wants to leave his illegitimate children something [in his will], then he must travel to the land's ting and proclaim that they are his children.' (DA_SL, Period I)

In example (207) there is a clear stress on the pronoun; the man in question proclaims that these are his children and no-one else's. However, in this particular text around half of all of the regular pronouns are already preposed. A certain contrast in the placing of pronouns that we do occasionally find in the oldest legal texts is that preposition is used for referents in the subject position, while postposition is used for referents in other syntactic roles, as in the following examples.

(208) *Sæl   man   bort   sin-æ   eghnæ iorth fore   tiughu marc*
      sells   man   away   REFL.POSS-OBL   own   land   for   twenty mark.PL

      ællær meræ oc   dör   han   sithæn han   hauir   wærth   takit
      or   more and   dies   3SG.M after   3SG.M has   payment   taken

      *um   tha   skulu **hans**   aruæ   skiftæ withær **konu** **hans***
      about then should 3SG.POSS.M heir.PL share   with   wife   3SG.POSS.M
      'If a man sells away his own land for twenty marks or more, and then dies after he has taken the payment, then his heirs share the inheritance with his wife.' (DA_SL, Period I)

(209) *þör   bondé   þa   en   konæ er   livændiþa   skal   af*
      dies   yeoman   when INDF wife is   living   then   shall   of

      takæ   hemfylgh   sin-æ   alt   þét   ær   vnöt   ær
      take   dowry   REFL.POSS-OBL   all   that is   unused is

hun	*ællær*	***hænær***	***börn***
3SG.F	or	3SG.POSS.F	child.PL

'If a yeoman dies and his wife is still living, then she or her children shall take the entire unused dowry.' (SV_AVL, Period I)

(210)	*Fæstir*	*maþær*	*mö*	*gær*	*viþ*	*lönþær*	*læghær*	*han*	*ær*
	betroths	man	girl	does	by	fornication		3SG.M	is

sakær	*at*	*sex*	*mark-um*	*uid*	***faþur***	***hænnær***
owing to	six	mark-DAT.PL	by	father	3SG.POSS.F

'If a man betroths a girl and fornicates with her, he owes six marks to her father.' (SV_AVL, Period I)

Of all subject NPs that include regular possessive pronouns in the first period (N = 76), only nine (11.8%) are examples of postposed pronouns. This confirms the hypothesis that fronting might have been used for especially salient, agentive referents.

Reflexive possessive pronouns are more often postposed than regular possessive pronouns are. Further, reflexives in Danish texts are more frequently postposed than those in Swedish texts. Stroh-Wollin (2015) rightly points out that there is generally less need to stress reflexive pronouns; they cannot be used to mark subjects in clauses in the way regular pronouns can, and they rarely mark salient or topical referents. It is thus expected that reflexive pronouns will be the last to obtain a fixed prenominal position. Since the postposed reflexives are almost as frequent as preposed reflexives (47.9% compared with 52.1%) in the corpus in Period I, neither order can be regarded as the unmarked one. Within the same text we thus find examples of both pre- and postposition of reflexives, both orders appearing in very similar contexts with no identifiable factors influencing the selection of one order over the other, as in (211) and (212).

(211)	*vm*	*bondæ*	*sun*	*förær*	***kono***	***sin-a***	*j*
	if	yeoman.OBL	son	leads	wife.OBL	REFL.POSS-ACC	in

bo	*mæth*	***faþær***	***sin-um*** *[...]*
household	with	father	REFL.POSS-DAT

'If a yeoman's son brings his wife into the household of his father [...]' (DA_SL, Period I)

(212)	*for*	*þy*	*at*	*han*	*ær*	*bathe*	***sin***	***eghin***	*wæriande*	*oc*
	for	that	that	3SG.M	is	both	REFL.POSS	own	custodian	and

sin-ni	***kunu*** *[...]*
REFL.POSS-DAT	wife.OBL

'As he is both his own and his wife's legal custodian [...]' (DA_SL, Period I)

Despite similarities in the use of pre- and postposed reflexives in Period I, several characteristics of their use can be identified. Firstly, reflexives tend to be especially often preposed in the texts from the first period if the head noun is modified by an adjective. Even

though there are only 32 examples of reflexives combined with NPs modified by adjectives (or other modifiers, such as numerals), the tendency is easily observable. Of these examples there are only seven (21.9%) with the order *adjective + head noun + reflexive*, and twenty-five (78.1%) with the order *reflexive + adjective + head noun*, as in the examples below.

(213) *oc*   *liuse*   *fore*   *þinghmann-um*   *þæt*   *han*   *wil*
      and   proclaims   before   ting.man-DAT.PL   that   3SG.M   wants

      giuæ   **sin-um**   **slökifrith-æ**   **born-um**   *æftir*
      give   REFL.POSS-DAT   illegitimate-WK   child.PL-DAT.PL   after

      moþær   **sinæ**
      mother   REFL.POSS
      'and he proclaims before the ting men that he wants to give his unlawful children [inheritance] after their mother' (DA_SL, Period I)

(214) *þæt*   *skulu [...]*   *tue*   *þæt*   *uita*   *at*   *hanum*   *uar*
      this   should   two   this   confirm   that   3SG.DAT.M   was

      laghlika   *þing*   *stæmt*   *firi*   **sin-a**   **sann-a**
      lawful   ting   summoned   for   REFL.POSS-ACC   true-WK

      gærþ
      deed
      'This should [...] two witnesses confirm that a lawful ting was summoned for him for his true deed.' (SV_OgL, Period I)

(215) *Hæfdær*   *broþir*   **systir sina**.   *ælla*   **systirdoctir**   **sina**
      abuses   brother   sister   REFL.POSS   or   niece   REFL.POSS

      böte   *hwart*   *þera*   *sæx*   *mark-ir [...]*   *hæfdær*   **sin**
      pays   each   3PL.GEN   six   mark-PL   abuses   REFL.POSS

      þræ   **mænning**   *bötin*   *niw*   *mark-ir*
      third   relative   pays   nine   mark-PL
      'If a brother abuses his sister or his niece, he pays six marks for each of them. [...] If he abuses his third-degree relative, he pays nine marks.' (SV_DL, Period I)

Interestingly, in example (213) the reflexive in *moþær sinæ* 'mother theirs' refers to the mother of the children; the reflexive is thus used to refer to an entity that is not the subject of the clause. In this case the norm is to use regular possessive pronouns; however, as shown in section 3.1.3 such use of reflexives is also possible, albeit rare in written language. In example (215) we see a contrast between unmodified head nouns followed by reflexives in the first sentence, and a modified head noun preceded by a reflexive in the second sentence. It is thus possible that at some point in the process of establishment of the prenominal order, modified NPs required the reflexive pronoun to be prenominal. In his study on the development of NPs into DPs in Scandinavian, Heltoft (2010: 20) argues that the Old Norse possessive pronouns

functioned as pronominal adjectives, as they were used descriptively and they were inflected for case and combined with strong, non-definite forms of adjectives. He points out that possessives underwent a word class change: from pronominal adjectives to determiners governing the definite form of adjectives and head nouns. The data in the present corpus reflect those changes. While regular possessive pronouns are already largely reclassified as determiners, reflexives are very much in the process of reclassification. There are thus examples with postposed reflexives combined with strong forms of adjectives (functioning as pronominal adjectives), as in (216), and examples with preposed reflexives functioning as determiners, as in (217) and (218).

(216) *tha*   *taki*   *hun*   *ey*   *mer*   *æn*   *en*   *lot*   *withær* **annur**
       then   takes   3SG.F   not   more   than   one   share   by   second.ST

       börn ***sin***   *oc*   *hin-s*   *döth-æ*   *syzskini.*
       child   REFL.POSS   and   DEF-GEN   dead-OBL   sibling.PL
       'Then she takes no more than one share out of [the inheritance of] her second child and the dead child's siblings.' (DA_SL, Period I)

(217) *oc*   *wil*   *han*   *giuæ*   ***sin-um***   ***slökifriþ-u***
       and   wants   3SG.M   give   REFL.POSS-DAT   illegitimate-WK

       börn-um   *nokat [...]*
       child.PL-DAT.PL   something
       'and if he wants to give his illegitimate children something [...]' (DA_SL, Period I)

(218) *habraam*   *husfru* *fic*   ***sit***   ***først-a***   ***barn*** *[...]*
       Abraham   wife   had   REFL.POSS   first-WK   child
       'Abraham's wife had her first child [...].' (SV_Bur, Period I)

Further, at this stage possessive pronouns (both regular and reflexive) and the definite article were not yet in complementary distribution as they are in present-day Swedish and Danish (see section 3.1.3), which again points towards a determiner system that was not yet fully formed.

(219) *Hæfdær*   ***fiurmænning-in***   ***sin***   *ælla* *guzziuia*
       abuses   fourth.relative-DEF   REFL.POSS   or   godparent.PL

       sina   *böte*   *þrea* *mark-ir*   *hwart* *þera*
       REFL.POSS.PL   pays   three mark-PL   each   3PL.GEN
       'If he abuses his fourth-degree relative or his godparents, he pays three marks for each of them.' (SV_DL, Period I)

(220) *oc*   *hans*   *styupbørn*   *kallæ* *thet*   *wæræ* ***theræ***   ***fæthær-n***
       and   3SG.POSS.M   stepchild.PL   call   it   be   3PL.POSS   father-DEF
       'and his stepchildren say that it is their father' (DA_VL, Period I)

Another characteristic of the use of reflexives in Period I is that when reflexives are used with nouns referring to the KINSHIP relation they are predominantly postposed (60.4% of cases). This proportion is significantly higher than the proportion for all reflexives with kin terms in Period I (38.4% of all reflexives) and higher than the proportion across all four periods (22.3% of all reflexives). The data clearly indicate that reflexives denoting the KINSHIP relation were the last to obtain a fixed prenominal word order. The notion of KINSHIP involves relational nouns that denote a certain relation between individuals (Barker 2011: 1111), a relation to another referent. These referents (possessors) are often mentioned earlier in the discourse, anchoring the relational kin term, which is subsequently semantically definite. In such a case there is no immediate need for fronting reflexives to determine the definiteness of the relational noun. Further, since the possessive relation is inscribed in the meaning of relational nouns, the fact that they relate to some other referent in the text is easily recognizable and predictable. Thus, it is not surprising that kin terms in the first period in the corpus continue to be marked with postposed reflexives.

In conclusion, the data shown indicate that the preposition of genitival modifiers predates that of possessive pronouns, in particular reflexive pronouns. This seems to verify the hypothesis put forward by Stroh-Wollin (2015), who sees fronting of modifiers as a way to emphasize them in constructions that are then information-structurally marked. The need to emphasize full NPs (possessors in the genitive) in the discourse is undoubtedly greater than the need to emphasize unstressed possessive pronouns. I agree that fronting might have been first associated with the emphasis of important, topical discourse referents, although the evidence for that will be found in earlier texts, not in the present corpus. The pragmatically motivated fronting stops quite early — before 1250 for genitival modifiers and ca. 1300–1350 for possessive pronouns. Once modifiers become reanalysed as determiners that render the head noun definite, preposition becomes obligatory on semantic and syntactic grounds. This goes hand in hand with generative or lexical-functional analyses, which state that in languages with DPs (which the present-day Scandinavian languages are argued to be), definiteness needs to be structurally marked on the left edge of the NP (in the D position). The definiteness marker or demonstrative occurs before the head noun to satisfy a constraint for definiteness to be overtly expressed on the left edge (Börjars, Harries & Vincent 2016: e27). Following Heltoft (2010: 22), I argue that these changes are not only syntactic, but also semantic. As mentioned in Chapter 4, the form of a construction often follows its function and meaning. So the change that we observe is triggered by the change of function; possessive adjectives with descriptive meaning become determiners whose main function is to render the head noun definite.

Finally, it is important to note that nearly all examples of postposition found in the corpora come from legal texts. These are the oldest Scandinavian texts written with the Latin alphabet (see section 4.2.2), and as they include legal jargon, their language is judged to be quite archaic (Skrzypek 2012: 17). Thus, it is possible that the written laws included in the corpus show us a somewhat archaic state of the language, from before the 12th century. The lack of postposition in religious texts from the same period confirms that.

5.2.3 Prepositional construction

As indicated in section 5.2, there are very few instances of possessive prepositional phrases in the corpus of historical texts. There are 40 examples (2.0% of all possessives) in the Danish texts, and 57 examples (2.8% of all possessives; see Tables 14 and 15 in section 5.2) in the Swedish texts; most of the examples come from the last period, 1550–1700. Table 20 illustrates the relative frequencies of the two nominal possessive expressions that can be interchangeable in present-day Swedish and Danish, PPs and genitives (excluding pronominal constructions).

Table 20. Frequencies of PPs and the genitive construction over the periods

Period	Danish			Swedish		
	genitive	PP	Total	genitive	PP	Total
I. 1250–1350	114	0	114	185	11	196
	100.0%	0.0%	100.0%	94.4%	5.6%	100.0%
II. 1350–1450	93	12	105	132	17	149
	88.6%	11.4%	100.0%	88.6%	11.4%	100.0%
III. 1450–1550	130	6	136	133	9	142
	95.6%	4.4%	100.0%	93.7%	6.3%	100.0%
IV. 1550–1700	359	22	381	297	20	317
	94.2%	5.8%	100.0%	93.7%	6.3%	100.0%
Total	696	40	736	747	57	804
	94.6%	5.4%	100.0%	92.9%	7.1%	100.0%

There is no significant increase in the frequency of possessive prepositional phrases throughout the periods studied here. In the second period (1350–1450) the use of PPs rises to 11.4% (out of all uses of genitives and PPs only) in both Swedish and Danish, but their frequency drops again in the following periods. In the last period the frequency of PPs is only ca. 6%. This presents a very different picture from the development of English genitive variation. Based on a study conducted by Thomas (1931) and reported on by Rosenbach (2002: 179–180), we see that 12th-century English was at the same stage regarding frequencies of PPs (genitives comprised 93.7% of attributive possessives, while PPs comprised 6.3%) as Swedish and Danish from the 15th to the 17th century. English then shows a rapid rise in the use of PPs; they increase to 31.4% of all attributive possessives (excluding possessive pronouns) in the 13th century and to 84.4% in the 14th century. No such development occurred in Swedish or Danish, at least before the 18th century. This rapid increase in the use of PPs in English is attributed by some to French influence (cf. Mustanoja 1960), and by others to structural reasons, as they find a relationship between the loss of inflection in the definite article and strong adjectives and the increased use of postnominal possessives (Thomas 1931: 120; cited in Rosenbach 2002: 180). Similar structural factors, namely the loss of inflection in the definite article and the loss of case marking in general, seem to have no influence on the rise of PPs in Swedish or Danish, as the frequency of the genitive construction does not show signs of decline.

Let us nonetheless characterize the early uses of possessive prepositional phrases in Swedish and Danish. The earliest examples from Period I (1250–1350) are mostly instances

of LOCATIVE possession, but there are also several examples of other relations such as OWNERSHIP or CONTROL, as in (221).

(221) *Nw   bødh   min   hœrra mik   at   letha*
       now   ordered   1SG.POSS   lord   1SG   to   find

       sin-om   syni   kono   ey   j   the   lande som
       REFL.POSS-DAT   son.DAT   wife.OBL   not   in   DEF   land   that

       *han   boor   wtan   j   **thæsso   lande** aff   **sinne   æt***
       3SG.M lives but   in DEM   land   of   REFL.POSS   family
       'Now my lord ordered me to find a wife for his son not in the land where he lives, but in this land of his family.' (SV_Pent, Period I)

The possessive relation expressed is not always straightforward; compare examples (222) and (223), in which the same relationship is expressed by a prepositional phrase and a genitive construction. I argue that the relationship expressed here is one of LOCATION rather than OWNERSHIP, as the emphasis is on the actions associated with a particular location, the bed.

(222) *Drœpœr   maþœr   man   i   **siangu   hos   kono***
       kills   man.NOM   man.ACC   in   bed.OBL   at   wife.OBL

       sinn-i   *œllœr annarstad [...]*
       REFL.POSS-DAT   or   other.place
       'If a man kills another man in the bed of his own wife or in another place [...].'
       (SV_AVL, Period I)

(223) *Gangœr   mœþr   fran   kono   sinn-i*
       goes   man.NOM   from   wife.OBL   REFL.POSS-DAT

       *mungiptri   i   **siang annarrar   kono**   aflar barn   þœt*
       lawfully.wedded   in   bed   another.GEN   woman.OBL   begets child that

       ér   horbarn
       is   adultery.child
       'If a man leaves his lawfully wedded wife and goes to another woman's bed, begets a child with her, that child is illegitimate.' (SV_AVL, Period I)

In the next two periods (1350–1450 and 1450–1550) almost 80% of possessive prepositional phrases are instances of LOCATIVE possession; in these periods, examples expressing the referents' origin or descent are predominant, as in (224) and (225).

(224) *Han   wan   **konung**   **aff**   **saxaland**   j   striidh*
       3SG.M won   king   of   Saxland   in   battle
       'He defeated the king of Saxland in battle.' (DA_GD, Period II)

(225) *och*   *sculle* *giffue* **keysere-n**   **aff**   **rom**   *een*   *siølff* *penningh*
      and   should give   emperor-DEF of   Rome   INDF   silver   coin

      til   *skat*
      as   tax
      'and should give the emperor of Rome a silver coin as a tax' (DA_Jesu, Period III)

The remaining examples are instances of PART–WHOLE relationships. Inanimate possessors are most commonly found in this context, as in (226), but there are two examples where the possessor is animate (227) or human (228).

(226) *Borghare-n*   *bödh*   *honum*   **thz**   **gren-a-na**   **aff**
      burgher-DEF   ordered   3SG.DAT.M   DEF   branch-PL-DEF.PL   of

      the   **stor-o**   **gran-ene**   *skullo* *nidher* *huggas*
      DEF   big-WK   spruce-DEF   should down   cut
      'The burgher ordered him to cut down the branches of the big spruce.' (SV_SVM, Period II)

(227) *Jeg*   *loffuæ* *teg*   *ath*   *skære* *bodæ* *spor-næ*   *aff*
      1SG   swear   2SG   to   cut   both   spike-DEF.PL   of

      myn-e   *fødher*   *ok*   **top-en**   **aff**   **myn**   **hæst**
      1SG.POSS-PL   foot.PL   and   top-DEF   of   1SG.POSS   horse
      'I swear to you that I will cut both the spikes [heels] of my feet and the top of my horse.' (DA_KM, Period III)

(228) *Oc*   *oppwäkte*   *thy*   *diäfwll-en*   **hiärta-t**   **i**   **en-om**
      and   woke.up   therefore   devil-DEF   heart-DEF   in   one-DAT

      iomffrw-nna-s   **thiänara**
      maiden-DEF-S   servant
      'And with that the devil woke up the heart of one of the maiden's servants.' (SV_Linc, Period III)

Firstly, the examples of the PART–WHOLE relationship cited above may be slightly ambiguous and puzzling. On the one hand, a clear PART–WHOLE relationship is observable (e.g. *the branches of the tree*); on the other hand, due to the use of verbs, such as *cut (down)*, and prepositions the reading may be more locative than possessive, especially in the sense of severing a part from the whole, as in (226) and (227). The ambiguity between location and possession does not, however, disprove the use of prepositions in possessive contexts. On the contrary, I argue that such examples prove that, as mentioned in Chapter 2, the schema of location is intricately connected to that of possession and that the use of possessive prepositional phrases began as references with locative anchoring. Secondly, nearly all examples of PART–WHOLE relationships in Periods II and III are expressed by longer NPs which are often modified by possessive pronouns (227) or full genitival NPs (228). It thus

seems that the early use of PPs in these contexts is triggered by the complexity of the phrase and, as a result of that complexity, by the wish to avoid processing difficulties in the case of so-called nested genitives, i.e. two identical possessive constructions in the same NP (in example (228) the nested construction *one of the maiden's servant's heart* is avoided).

In the last period (1550–1700) LOCATIVE possessive notions are again predominant among prepositional phrases (63.6% of PPs), but more examples of PART–WHOLE relationships are found here than in previous periods (15.9% of PPs). Examples of PART–WHOLE relations are found with both human (229 and 230) and inanimate possessors (231); in contrast to the previous periods, these examples are not complex modified NPs with multiple possessives.

(229) *Och* **kropp-an-ar** **bådhe** **aff** *menniskior* *och* *annor diwr [...]*
      and body-DEF-PL both of human.PL and other animal.PL
      'And bodies of both humans and other animals [...]' (SV_OP, Period IV)

(230) *när* *dhen* *ena* *bössa-n* *small* *löös* *i* **hand-en** **på**
      when DEF one rifle-DEF knocked loose in hand-DEF on

      hertig-en, *bran* *och* *dhen* *andra* *löös* *i* *hölster-ett* *och*
      duke-DEF burnt also DEF other.WK loose in holster-DEF and

      blylodh *igönom* **knä-et** **på** **hertig-en**
      lead.bullet through knee-DEF on duke-DEF
      'When the one rifle got knocked loose in the hand of the duke, the other one also burnt in the holster and a lead bullet shot through the knee of the duke.' (SV_CCG, Period IV)

(231) *men* *stod* *paa* **det** **øverst-e** **Trin** *af* *en* **Trappe**
      but stood on DEF top-WK step of INDF stair
      'but [he] stood on the top step of a stair' (DA_OG, Period IV)

Interestingly, example (230) illustrates a locative construction with the preposition *på* 'on', which is typically used in Scandinavian languages with inalienable body part nouns (see Lødrup 2009; 2014). With human possessors only a body part possessum is allowed in such a construction; compare with examples of PART–WHOLE relations with inanimate referents (232).

(232) a. *tak-et* *på* *hus-et*
          roof-DEF on house-DEF
          'the roof of the house'

      b. *torn-et* *på* *kyrka-n*
          tower-DEF on church-DEF
          'the tower of the church'

With the exception of examples (227) and (231), there are no examples in the Danish corpus with a PART–WHOLE relationship expressed through prepositional phrases; compare this with the Swedish corpus, in which 24.6% of all uses of prepositional phrases express PART–WHOLE relationships. This confirms the insight of Chapter 3 (section 3.1.2) that Danish might be less likely to use PPs for PART–WHOLE relationships, at least in the diachronic data. To sum up, possessive prepositional phrases are less frequent in the Danish corpus than in the Swedish one, they first begin to appear in texts in the second period (1350–1450), and they are predominantly LOCATIVE (82.5% of all PPs in Danish texts). In the Swedish corpus possessive PPs are found already in the oldest texts (1250–1350), most of them are LOCATIVE in meaning (50.9%), but there are also examples of PART–WHOLE relations (24.6%) and occasional examples of other notions, such as CONTROL, TEMPORAL, and ABSTRACT possession. Interestingly, there are no examples in the Danish or Swedish corpus of the KINSHIP relationship expressed with PPs.
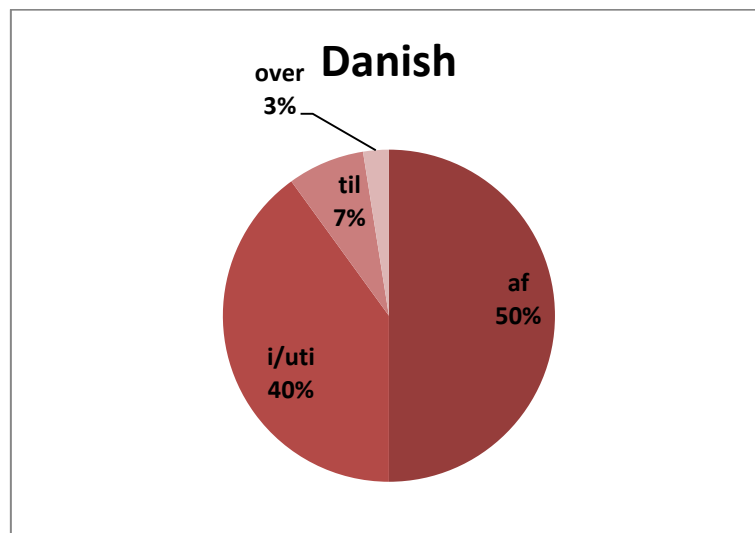
Figure 11. Prepositions used in possessive PPs in Danish texts (1250–1700)
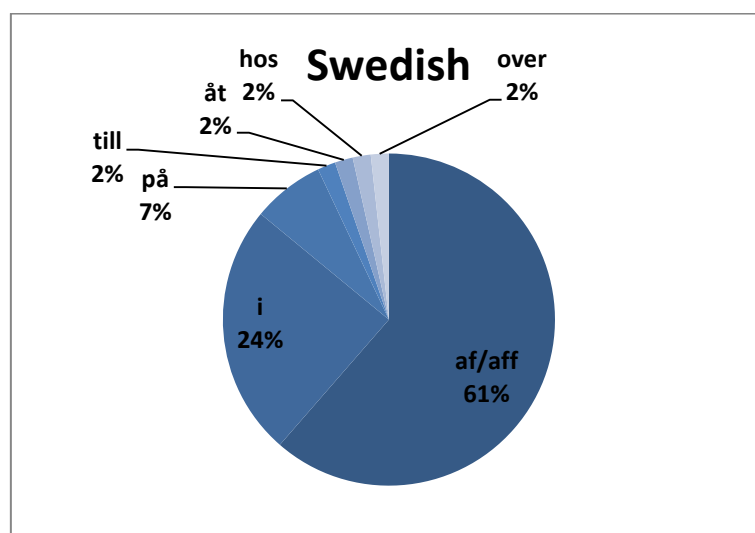
Figure 12. Prepositions used in possessive PPs in Swedish texts (1250–1700)

As concerns the prepositions used in possessive PPs, Figures 11 and 12 illustrate the frequencies of all prepositions found in the corpora. In both languages the preposition *af* 'of' is the most frequently used, accounting for at least half of the cases, followed by the preposition *i* 'in'. In Danish two other prepositions are used: *til* 'to' and *over* 'over', while in Swedish we find occasional examples with the prepositions *på* 'on', *till* 'to', *åt* 'to(wards)', *hos* 'at', and *over* 'over'. The prepositions used reflect the notions expressed in possessive PPs: *af* 'of' entails origin or descent, *i* 'in' suggests location; both of those are used in LOCATIVE phrases. *På* 'on', on the other hand, which is found in the Swedish but not the Danish corpus, is reserved for PART–WHOLE relationships with human possessor referents.

In the next section I turn to discussing the genitive construction in more detail, with a focus on the different variables that characterize the use of this construction in Danish and Swedish in the studied periods.

5.3 Variables affecting the selection of the genitive construction

In this section I focus on the genitive construction in order to explore in more detail the factors that influence the selection of the genitive in the Swedish and Danish historical corpora. The factors discussed are: animacy, definiteness, topicality, length of the phrase, as well as number, countability, and concreteness.

5.3.1 Animacy
Before I turn to the factor of animacy, it is worthwhile to emphasize and explain why studies on English genitive variation are taken in this study as a basis for drawing hypotheses about Danish and Swedish. These languages are closely related not only in genetic terms, but also in terms of typological evolution. In these Germanic languages the relatively early literacy is associated with the loss of nominal case marking, the development of definiteness marking and the emergence of a fixed word order with an obligatory subject — not to mention the grammaticalization paths of the s-genitive, which shows corresponding patterns in these languages (Norde 1997; Allen 2003; Perridon 2013; Piotrowska 2017). Given all that, I argue that comparing the development of Danish and Swedish possessive nominal marking with the well-studied and similar developments in English is not unjustified, although as I showed in the previous section (see 5.2.3), some developments will differ in terms of time periods, for example the early use of possessive PPs in English, or in terms of frequency of use, for example the presence of reflexive possessive pronouns in Danish and Swedish throughout the whole corpus.

Previous studies on English genitive variation show that the genitive was extremely rarely used with inanimate possessors between the 15th and 17th centuries (only in ca. 2% of all inanimate possessors) (Rosenbach 2002: 190). Interestingly, due to the rapid increase in the use of PPs and their dominance in that period (as mentioned in section 5.2.3), the genitive did not even dominate in the contexts with animate possessors until the late 16th century in English (Rosenbach 2002: 191–192). On the other hand, the modern use of the s-genitive in Scandinavian languages is generally associated with animate and human referents, in particular in Norwegian (Julien 2005: 226; see also Gunleifsen 2011) and Northern dialects of Swedish (Delsing 2003b: 39). Further, the use of inanimates with the genitive construction is

said to be limited in Standard Swedish, with the exception of LOCATIVE and TEMPORAL possession (for example, *Stockholms gator* 'the streets of Stockholm' and *dagens rätt* 'meal of the day') (Koptjevskaja-Tamm 2002b: 150). To explore the factor of animacy in the genitive construction in the Swedish and Danish historical corpora, I use the animacy hierarchy as presented in Chapter 4; the scale is repeated here in Table 21 (based on Rosenbach 2008).

Table 21. Animacy hierarchy used in the present study

	animate				inanimate	
human →	abstract → animate	animal →	collective →	temporal →	spatial →	inanimate
the girl's book	*God's will*	*the cat's whiskers*	*the firm's policy*	*yesterday's paper*	*Stockholm's schools*	*the car's tyres*

       Tables 22 and 23 illustrate the animacy values of the possessor in the genitive construction over the four periods in Danish and Swedish. For both languages, the differences in frequencies of animacy values are found to be highly statistically significant.

Table 22. Animacy of possessors in the genitive in Danish

Animacy	1250–1350	1350–1450	1450–1550	1550–1700	Total
HUMAN	67	49	69	148	333
	58.8%	52.7%	53.1%	41.2%	47.8%
ABSTRACT ANIMATE	7	28	24	48	107
	6.1%	30.1%	18.5%	13.4%	15.4%
ANIMAL	5	0	2	0	7
	4.4%	0.0%	1.5%	0.0%	1.0%
COLLECTIVE	5	0	1	13	19
	4.4%	0.0%	0.8%	3.6%	2.7%
TEMPORAL	0	1	1	3	5
	0.0%	1.1%	0.8%	0.8%	0.7%
SPATIAL	0	12	6	57	75
	0.0%	12.9%	4.6%	15.9%	10.8%
INANIMATE	30	3	27	90	150
	26.3%	3.2%	20.8%	25.1%	21.6%
Total	114	93	130	359	696
	100.0%	100.0%	100.0%	100.0%	100.0%

$$\chi^2 = 97.726,\ df = 18,\ p < 0.001$$

Table 23. Animacy of possessors in the genitive in Swedish

Animacy	1250–1350	1350–1450	1450–1550	1550–1700	Total
HUMAN	98	55	46	154	353
	53.0%	41.7%	34.6%	51.9%	47.4%
ABSTRACT ANIMATE	28	43	15	28	114
	15.1%	32.6%	11.3%	9.4%	15.3%
ANIMAL	0	3	0	1	3
	0.0%	2.3%	0.0%	0.3%	0.4%
COLLECTIVE	2	1	2	4	9
	1.1%	0.7%	1.5%	1.3%	1.2%
TEMPORAL	1	0	1	6	8
	0.5%	0.0%	0.7%	2.0%	1.1%
SPATIAL	20	5	21	48	93
	10.8%	3.8%	15.8%	16.2%	12.5%
INANIMATE	36	25	48	56	165
	19.5%	18.9%	36.1%	18.9%	22.1%
Total	185	132	133	297	747
	100.0%	100.0%	100.0%	100.0%	100.0%

$\chi^2 = 81.312$, $df = 18$, $p < 0.001$

Firstly, animal, collective and temporal referents proved to be very infrequent in the material. Together they account for only 2.7% of possessors in Swedish and 4.4% in Danish. This is directly connected to the nature of texts that were produced in the time period studied here; none of the texts in the corpus featured longer descriptions of animals, for instance. The need to place collective and temporal referents as possessors was also marginal. Collective possessors found in the corpus include mainly nouns such as *fæþrinis frændær* 'relatives on the father's side' (DA_SL, Period I) and *rådets vilje og samtykke* 'the council's will and approval' (DA_FO, Period III); temporal possessors include such examples as *synnudags hælg* 'Sunday's feast/holiday' (SV_DL, Period I) and *åhrss skatter* 'a year's taxes' (SV_JS, Period IV). Abstract animate possessors are the most frequent in the second period, which is not surprising as it includes many religious texts. Spatial possessors in the genitive are moderately frequent (12.5% of all possessors in Swedish and 10.8% in Danish). Since spatial possessors indicate the possessum referent's location or origin, in other words the notion of LOCATIVE possession, which is the most frequent notion expressed by PPs in the corpus (see section 5.2.3), it is worthwhile to compare the use of genitives and PPs in this context. Figure 13 illustrates the relative frequency of genitives and PPs with spatial possessors in each period; here the results from Danish and Swedish are taken together.

Overall, out of all spatial possessors in the corpus (N = 223) 75.3% are in the genitive and 24.7% are expressed with the use of prepositional phrases. With the exception of Period II, the results show a steady ratio, with ca. 75–80% of spatial possessors in the genitive and 20–25% with PPs. This tells us that the genitive was allowed with inanimate spatial possessors already in the oldest extant texts, and that it was by no means replaced by prepositional phrases in this context before the 18th century, and possibly not even after that. The sudden rise of LOCATIVE PPs in Period II can be explained by the presence of profane

texts describing a country or region's history. These are abundant in examples such as *konungin aff vngaria* 'the king of Hungary' or *drotning aff skotland* 'the queen of Scotland', which are usually expressed through PPs, and which are not found in such large numbers in the texts from the other periods.
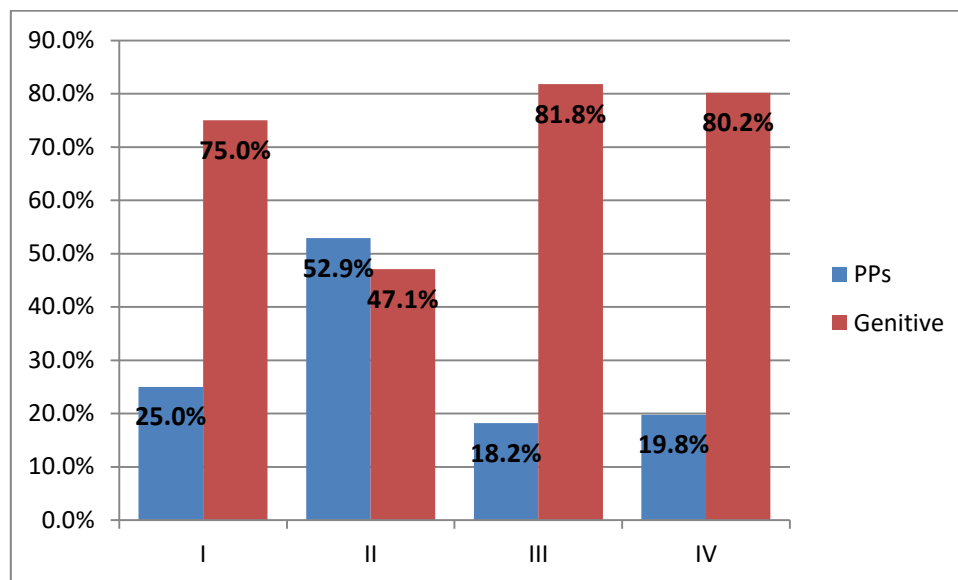
p < 0.01

Figure 13. Distribution of the genitive construction and prepositional phrases among spatial possessors

Further, human possessors are overall the most frequent in both languages and in all periods, except for Period III (1450–1550) in the Swedish corpus, where inanimate possessors are marginally more frequent than human ones. To examine whether the genitive construction favours animate possessors, I compare animate and inanimate possessors in the genitive with the overall numbers of animate and inanimate referents in the corpus. The referents are grouped here into more general categories: animate (comprising human, abstract animate, animal and collective referents) and inanimate (comprising temporal, spatial and inanimate referents). Table 24 illustrates the overall number of animate and inanimate referents in the corpora; these include possessor and possessum referents for all possessive expressions researched here (including PMs in pronominal constructions), but also referents in NPs outside possessive expressions.

Table 24. Overall number of animate and inanimate referents in Danish and Swedish corpora

	DANISH		SWEDISH	
Period	ANIMATE	INANIMATE	ANIMATE	INANIMATE
I. 1250–1350	584	673	666	725
II. 1350–1450	581	626	482	747
III. 1450–1550	461	588	260	632
IV. 1550–1700	806	1,400	868	1,274
Total	2,432	3,287	2,276	3,378

If we count all genitives (animates + inanimates) as 100.0% and all overall referents (animate + inanimate) as 100.0%, and then compare the proportions of animacy values in each period, we obtain the results presented in Figures 14 and 15.
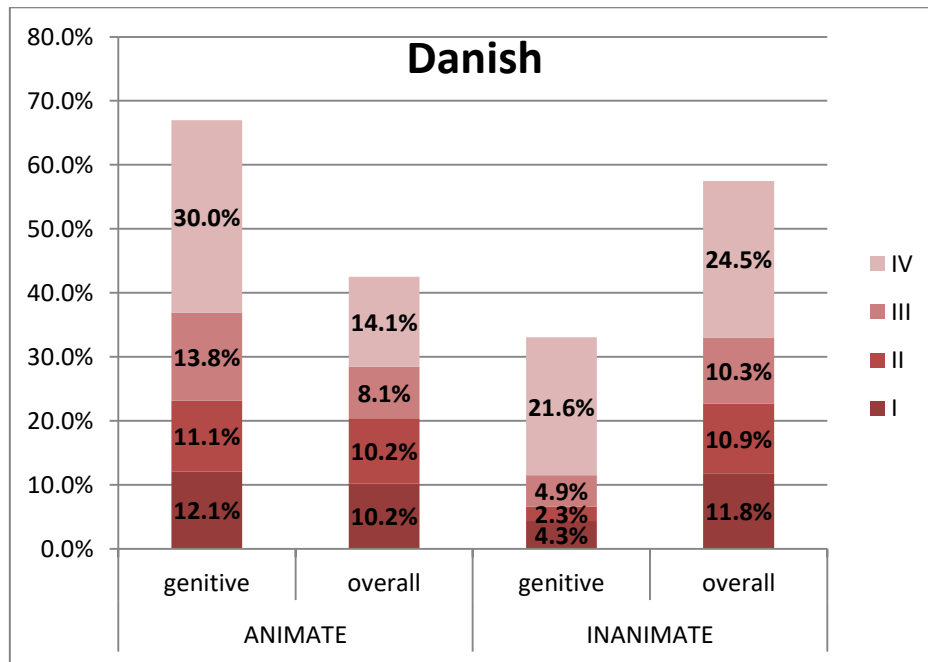
Danish

p < 0.001 for ANIMATE; *p* < 0.01 for INANIMATE

Figure 14. Relative frequencies of animate and inanimate referents among possessors in the genitive and all referents in the Danish corpus
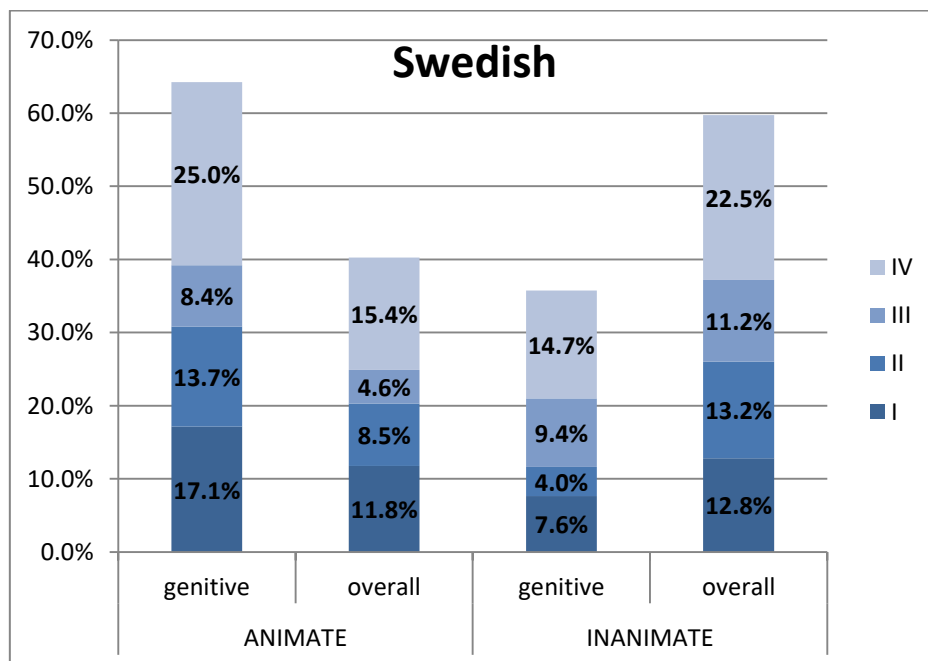
Swedish

p < 0.01 for ANIMATE; *p* < 0.001 for INANIMATE

Figure 15. Relative frequencies of animate and inanimate referents among possessors in the genitive and all referents in the Swedish corpus

Firstly, the means of the proportions of animate and inanimate referents were compared using a two-tailed *t*-test. The test found that there are statistically significant differences (at significance level $p < 0.01$ or $p < 0.001$) in the proportions for the genitive construction and for overall referents. In Swedish already in Period I, and throughout the remaining periods, the proportion of animate possessors in the genitive is higher than that of animate referents in general. Correspondingly, the proportion of inanimate referents in the genitive is consistently lower than that of inanimate referents in general. The Swedish genitive construction can thus be said to favour animate possessors over inanimate ones. In Danish the proportion of animate possessors in the genitive is only marginally higher than that of all animate referents in Periods I and II, but in the last two periods the proportion is much higher, resembling the results for Swedish. The proportion of inanimate possessors in the genitive in Periods I–III is, in turn, much lower than the proportion of all inanimate referents. In the last period, however, the proportion of inanimate possessors is almost equal to that of all inanimate referents. The Danish genitive construction is also shown to favour animate referents, in particular in Periods III and IV.

Further, while the relative frequencies allow us to state that the genitive construction favours animate possessors in the Danish and Swedish corpora, it is not possible, based on raw frequencies, to judge whether the number of animate possessors in the genitive rises or drops. For instance, in Swedish in Period III we observe that there are considerably fewer animate possessors and more inanimate ones than in the other periods. However, the reason for this is clearly the fact that the overall number of animate referents in texts from that period is very low compared with the other periods (only 4.6% of all referents; see Figure 15).

5.3.2 Definiteness

There is a general tendency in Danish and Swedish for genitival possessors to have an overt definite form, although there are no formal restrictions against indefinite possessors. Authors of grammars of both Danish and Swedish point out that the s-genitive usually attaches to definite singular NPs or definite and indefinite plural NPs (see Hansen 1967: 209 for Danish; Teleman, Hellberg & Andersson 2010b: 25 for Swedish). Hansen (1967: 209) also notes that while bare forms of nouns are standard for abstract and mass nouns (such as *angst* 'anxiety', *frygt* 'fear', *luft* 'air', *ho* 'hay'), when these nouns appear with the ending -*s*, they almost exclusively appear in the definite (*angstens* 'the anxiety's', *frygtens* 'the fear's', *luftens* 'the air's', *hoets* 'the hay's'). The predisposition of genitival possessors to be grammatically definite stems from their main function: namely, as determiners they render the head noun definite. To successfully do that, the possessor that serves as an anchor or a reference point for identifying the head noun should be easily accessible and familiar, and definite descriptions fill this role best. In the periods studied here, especially the first period (1250–1350), definite articles in Danish and Swedish were undergoing the grammaticalization process (see Skrzypek, Piotrowska & Jaworski 2021 for a detailed study); it is thus worthwhile to see how genitival possessors went from being predominantly bare NPs to definite NPs.

In operationalizing the factor of definiteness for this study, I have chosen to focus on the grammatical aspects of definite descriptions rather than discourse-pragmatic ones. Five categories of definiteness are distinguished: proper name, definite, possessive, indefinite, and

zero-marked (see section 4.3.2 for detailed descriptions and conditions for each category). Definite possessors are those with explicit definite determiners, such as the suffixed definite article (233) or preposed definite article and demonstratives (234). The category of possessives includes possessors modified by possessive pronouns or genitival NPs. Proper names constitute their own category, as they are semantically definite but rarely bear explicit definite determiners. The indefinite category includes explicitly indefinite NPs with an indefinite article (235) or other indefinite determiners, such as *any*, *no*, *some*, etc. In this category I also include bare NPs in the plural that are understood as existential (236), and NPs modified by adjectives only. In the last category, zero-marked, I include bare NPs in the singular that are not modified by any determiners or adjectives, which in present-day Swedish or Danish would require a determiner, as in (237).

(233) *diäfwl-s-en-s*   *swik*
       devil-S-DEF-S   deceit
       'the devil's deceit' (SV_Jart, Period II)

(234) *then   same   quinne-s   sieell*
       DEF   same   woman-S   soul
       'the same woman's soul' (DA_Kat, Period III)

(235) *en-s   rik-x   riddar-a   hws*
       INDF-S rich-S knight-GEN   house
       'a rich knight's house' (SV_SVM, Period II)

(236) *planet-er-s   oc   stiärn-or-s   gang*
       planet-PL-S   and   star-PL-S   path
       'the path of planets and stars' (SV_Troja, Period III)

(237) *oc   loth   thet   graffue   i   mynstæri-ss   sanghuss*
       and   let   it   bury   in   monastery-S   chancel
       'and let it be buried in the monastery's chancel' (DA_Mar, Period II)

Tables 25 and 26 illustrate the definiteness values of the possessor in the genitive construction over the four periods in Danish and Swedish. The differences in frequencies of definiteness values are statistically significant for both languages.

Table 25. Definiteness of possessors in the genitive in Danish

Definiteness	1250–1350	1350–1450	1450–1550	1550–1700	Total
PROPER NAME	5	44	64	86	199
	4.4%	47.3%	49.2%	24.0%	28.6%
DEFINITE	26	10	23	166	225
	22.8%	10.8%	17.7%	46.2%	32.3%
POSSESSIVE	9	15	17	65	106
	7.9%	16.1%	13.1%	18.1%	15.2%

Definiteness	1250–1350	1350–1450	1450–1550	1550–1700	Total
INDEFINITE	14	3	7	38	62
	12.3%	3.2%	5.4%	10.6%	8.9%
ZERO-MARKED	60	21	19	4	104
	52.6%	22.6%	14.6%	1.1%	14.9%
Total	114	93	130	359	696
	100.0%	100.0%	100.0%	100.0%	100.0%

χ^2 =275.667, *df* = 12, *p* < 0.001

Table 26. Definiteness of possessors in the genitive in Swedish

Definiteness	1250–1350	1350–1450	1450–1550	1550–1700	Total
PROPER NAME	43	46	45	117	251
	23.3%	34.9%	33.8%	39.4%	33.6%
DEFINITE	20	43	39	121	223
	10.8%	32.6%	29.3%	40.7%	29.9%
POSSESSIVE	11	23	25	31	90
	5.9%	17.4%	18.8%	10.4%	12.0%
INDEFINITE	27	9	12	21	69
	14.6%	6.8%	9.0%	7.1%	9.2%
ZERO-MARKED	84	11	12	7	114
	45.4%	8.3%	9.0%	2.4%	15.3%
Total	185	132	133	297	747
	100.0%	100.0%	100.0%	100.0%	100.0%

χ^2 =214.421, *df* = 12, *p* < 0.001

The zero-marked category, in which possessors in the genitive appear with no determiners or modifiers, is — unsurprisingly — the most frequent in the first period in both languages (see examples (238) and (239)). The frequency of this category drops in the following periods; the decline is consistent and gradual in Danish, while in Swedish it is very abrupt. By the last period the use of possessors that are not marked by any determiners has virtually ceased, except for isolated examples. Those generally include abstract referents, such as *love* in (240), or unique referents, such as *king* in (241).

(238)   *Cumær*   *swa*   *at*   **man-z hund** *warthær*   *galæn oc*   *bitær*
         comes   so   that   man-S dog   becomes   mad   and   bites

         han   *anti*   *folc*   *ellær*   *fæ [...]*
         3SG.M either   folk   or   livestock
         'If it happens that a man's dog becomes rabid and bites either people or livestock [...]'
         (DA_ErL, Period I)

(239)   *þa*   *skal*   *til*   *þing-xs*   *fara*   *ok*   *taka*   **kunung-x**   **dom**
         then   shall   to   ting-S   travel   and   take   king-S   verdict

         ælla   **laghman-zs**
         or   judge-S

'then [he] shall travel to a ting and accept the king's or judge's verdict' (SV_OgL, Period I)

(240) *Så   begynte   Celadon   oförmerkt   att   skiuta mz*
so   began   Celadon   unnoticed   to   shoot with

*ög-on-en   några små   och   lätt-a   **kärleek-s   kolffv-ar***
eye-PL-DEF.PL some small.PL   and   light-PL   love-S   arrow-PL
'So began Celadon unnoticed to shoot some small and light arrows of love with his eyes.' (SV_UH, Period IV)

(241) *Men   i   Vpsala,   ther   som   **konung-s   sätit   här   i***
but   in   Uppsala   there   where   king-S   seat   here   in

Swerige   warit   haffuer [...]
Sweden   been   has
'But in Uppsala, where the king's seat has been here in Sweden [...]' (SV_OP, Period IV)

Indefinite possessors are the least frequent category both in Swedish and Danish, which confirms the tendency for possessors to be definite. Indefinite NPs in the genitive are, surprisingly, most frequent in the first period, but this can be explained by the relatively high number of indefinite determiners used especially frequently in legal texts. Determiners such as *annær* 'other', *ingsin* 'no' or *nagon* 'some' function at this stage like pronominal adjectives, just as possessive pronouns do (Heltoft 2010). In the oldest extant texts there is only one example of a possessor with a nascent indefinite article, as in (242). One could argue, however, that in this case the indefinite *en* in fact has a cardinal meaning — 'one feast's day' rather than 'a feast's day' — since the indefinite article was at an early stage of grammaticalization at that time. In the following periods indefinite articles are more frequent, since the grammaticalization of the indefinite article was progressing during that time, as in (243) and (244). In example (243) from Period II, the indefinite article is used in a non-specific reference, which shows a rather advanced stage of grammaticalization.

(242) *þa   han   ofra   wilde   vm   **en   høghtiþe-s   dagh***
when   3SG.M   sacrifice   wanted   around INDF   feast-S   day

Ioakim   flyþe   firi   blyght wrækin   fra   ofre
Joachim   fled   for   insult driven   from   sacrifice
'When he wanted to offer a sacrifice on a feast's day, Joachim fled because of the insult he got for the sacrifice.' (SV_Bur, Period I)

(243) *ok   diäfwl-en   vppinbaradhis j   **en-na   quinn-o   liknilse***
and   devil-DEF   appeared   in   INDF-GEN   woman-OBL   form
'And the devil appeared in the form of a woman.' (SV_Jart, Period II)

(244) *Enghen thingh er j wærdh-en ther kan lighnes with*
no   thing is in world-DEF that can be.compared with

een   sieel-s delighet
INDF   soul-S proficiency
'There is nothing in the world that can compare to a soul's proficiency.'
(DA_Kat, Period III)

Proper name possessors are consistently frequent in Swedish throughout all periods, with an average of 33.6% of possessors. In Danish the frequency of proper names varies: it is very low in the first period and very high in the second and third periods. These differences stem from the availability of referents in the texts from those periods. In Period I the Danish corpus includes almost exclusively legal texts, which naturally exhibit virtually no proper name referents. The Swedish corpus in Period I includes more and longer fragments of religious texts in which proper names occur more frequently, hence the differences in frequencies in Tables 25 and 26. The same applies to the Danish corpus in Periods II and III — religious texts are best represented here, and as they often include short stories with several named characters, proper names are most frequent in such texts. In corresponding texts from the Swedish corpus, characters are introduced by proper names less frequently than in Danish; general, descriptive NPs are used instead, like *en munk* 'a monk', *en riddare* 'a knight'. Overall, there is a strong tendency to use the genitive with proper names in both Swedish and Danish between 1250 and 1700, as on average ca. 31% of possessors are proper names.

Around 12% of Swedish and 15% of Danish possessors in the genitive are modified by other possessives. Most of the modifiers are possessive pronouns; they appear in 84.5% of possessors whose definiteness is classified as *possessive* in Swedish, and 79.3% in Danish, as in examples (245) and (246). The remaining examples include nested genitives, namely constructions with several genitival NPs within one possessive NP, as in (247).

(245) *fik   brodhr-in   ogudhlikin   kerlek oc   ond   astundilse   til*
got   brother-DEF ungodly   love   and evil   desire   to

sin-s   brodher-s   hustru
REFL.POSS-S brother-S   wife
'The brother felt an ungodly love and evil desire for his brother's wife.'
(SV_ST, Period II)

(246) *Mæn iek   meræ skædher   **theres**   **siel-e-s**   **skickelsæ***
but 1SG   merely observe   3PL.POSS   soul-PL-S   condition
'but I merely observe their souls' condition' (DA_Kat, Period III)

(247) *Hading-s   **konung-s**   **dother-s**   **søn***
Hading-S   king-S   daughter-S   son
'king Hading's daughter's son' (DA_GD, Period II)

Finally, in Swedish, explicitly definite possessor phrases show a steady increase throughout the periods studied, from ca. 11% of possessors in Period I to ca. 40% in Period IV. This development clearly coincides with the grammaticalization of the suffixed definite article in Swedish (see for instance Perridon 1989; Stroh-Wollin 2009; 2016; Skrzypek 2012), which was by and large fully formed before Period IV. In Danish, definite possessors are relatively frequent to begin with (twice as frequent as in Swedish in the same period), but the frequency of their use declines in the second period. Only in the last period do they reach a higher frequency, constituting ca. 46% of possessors. This by no means indicates that the Danish definite article was lagging behind the Swedish article in grammaticalization, but is rather connected to the very high frequency of Danish proper name possessors in these periods. This, as mentioned earlier, is a result of the dominance of proper name referents in religious Danish texts.

To examine whether or not the genitive construction favours explicitly marked definite NPs over those that bear no determiners (the zero-marked category), I compare the results for genitives with the results for all referents in the corpus. All noun referents in the corpus outside possessive NPs were annotated only if they were definite or bare; for that reason I compare only these two categories, excluding possessive, proper name or indefinite classifications. The two datasets, namely definite and bare NPs in the genitive and definite and bare NPs overall, are comparable, as they show similar proportions in the corpus (see Table 27).

Table 27. Sum of definite and bare NPs in the genitive and overall in the Swedish and Danish corpora

DEF + ZERO	DANISH	SWEDISH
genitive	47.3%	45.1%
	(329 out of 696)	(337 out of 747)
overall	46.9%	46.1%
	(2,164 out of 4,615)	(2,113 out of 4,586)

Figures 16 and 17 illustrate the relative frequencies of definite and bare NPs in the genitive and overall in the corpora. Here, all genitives are counted as 100.0% in each language (747 genitives in Swedish and 696 in Danish); thus, for instance, in Swedish in Period I there are 20 definite PRs, which constitutes 2.7% of all genitives, and so on. Similarly, for the overall data there are 4,586 NPs annotated in the Swedish corpus and 4,615 in the Danish corpus, which are counted as 100.0% in the corresponding bars in the figures. Note that only two categories are compared here (definite and zero-marked), thus the bars corresponding to *genitive* or *overall* do not reach 100.0%.

A two-tailed *t*-test was performed to test the null hypothesis that there are no significant differences in the proportions of definite and zero referents between uses of the genitive and overall NPs. The test found statistically significant differences for all cases at a significance level of $p < 0.03$, except for bare referents in Swedish ($p < 0.08$).[21]

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[21] In all statistical tests presented in this dissertation I take $p < 0.05$ as the threshold of statistical significance, as is customary in linguistic studies (Elliott & Woodward 2007: 9; Levshina 2015: 12).
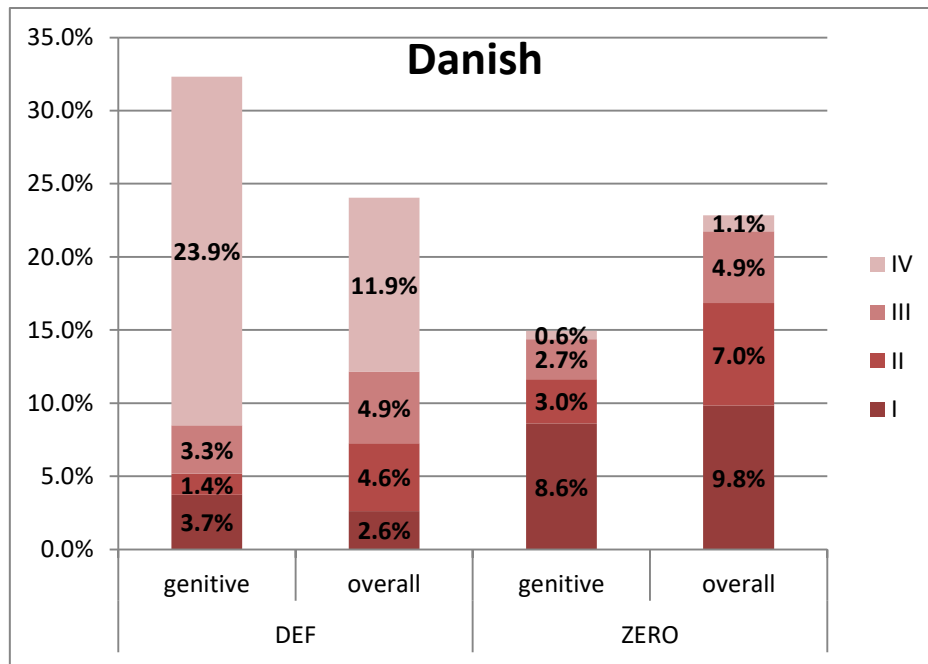
p < 0.03 for DEF; *p* < 0.03 for ZERO

Figure 16. Relative frequencies of definite and bare referents among possessors in the genitive and all referents in the Danish corpus
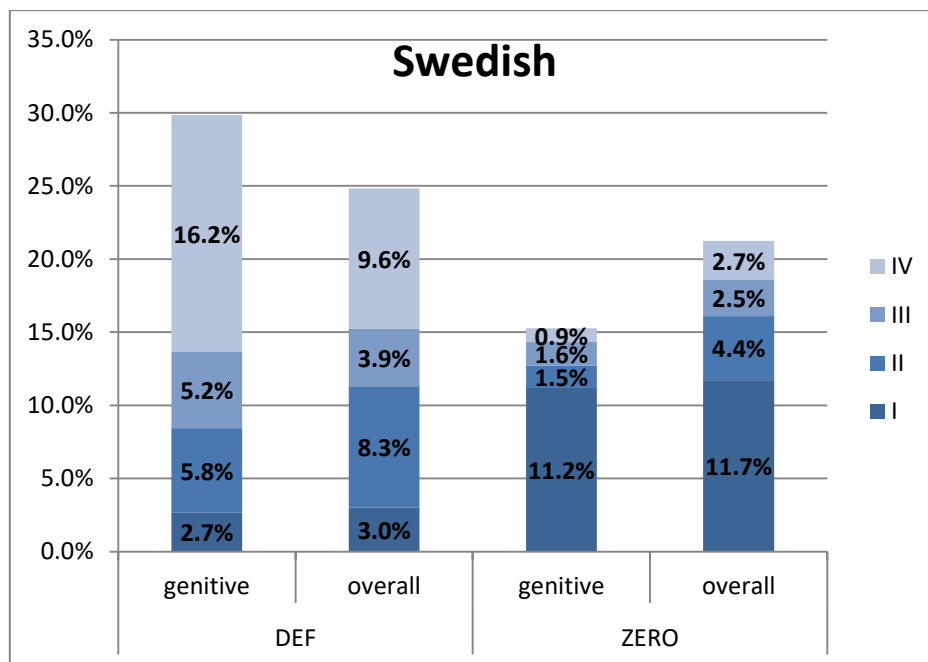
p < 0.03 for DEF; *p* < 0.08 for ZERO

Figure 17. Relative frequencies of definite and bare referents among possessors in the genitive and all referents in the Swedish corpus

In Swedish in Periods I and II the proportion of definite possessors is slightly lower than that of overall NPs, but in Periods III and IV the proportion is higher; it is considerably higher in the last period in particular. Thus, in the last two periods the Swedish genitive construction favours definite NPs. As mentioned, the results for bare referents in Swedish are not statistically significant, but it is clear that in Periods II–IV the proportion of bare NPs as

possessors is lower than the overall proportion. In Danish only in Period IV are definite NPs significantly higher in genitive uses than in the overall results, but for all periods the proportion of bare possessors is lower than in the overall results. Danish can thus be said to disfavour bare NPs as possessors in the genitive throughout all of the periods studied here.

5.3.3 Topicality

Having examined grammatical definiteness and its distribution in genitival possessors, it is now time to examine givenness in a discourse-pragmatic sense. As explained in Chapter 4, topicality, namely the given/new distinction, is operationalized in this study based on the presence of previous mentions. Given referents are thus subsequent mentions, while new referents are first mentions with no preceding co-referential NPs. The same argument can be made for topicality as for definiteness (section 5.3.2), namely that, since the possessor functions as an anchoring referent that renders the head noun definite, given referents will be more likely to occur as possessors in a genitive construction than new referents. For historical texts, in which markers of (in)definiteness were not fully established and grammaticalized, the discourse-pragmatic approach that the notion of topicality offers might be more felicitous. Table 28 illustrates the distribution of given and new referents among possessors in the genitive in the Danish and Swedish corpora.

Table 28. Topicality of possessors in the genitive in Danish and Swedish

	Danish			Swedish		
Period	GIVEN	NEW	Total	GIVEN	NEW	Total
I. 1250–1350	71	43	114	115	70	185
	62.3%	37.7%	100.0%	62.2%	37.8%	100.0%
II. 1350–1450	77	16	93	100	32	132
	82.8%	17.2%	100.0%	75.8%	24.2%	100.0%
III. 1450–1550	82	48	130	85	48	133
	63.1%	36.9%	100.0%	63.9%	36.1%	100.0%
IV. 1550–1700	257	102	359	208	89	297
	71.6%	28.4%	100.0%	70.0%	30.0%	100.0%
Total	487	209	696	508	239	747
	70.0%	30.0%	100.0%	68.0%	32.0%	100.0%

p < 0.001 for all periods in both languages

Overall, the results are very similar for Swedish and Danish, with an average of 68–70% of possessors being given in the discourse. The results are also quite stable across the four periods, as there are no severe increases or decreases in frequency, save the second period, in which given possessors rise above the average in both languages. Some examples from that period are given in (248) and (249). As expected, given referents constitute a majority among possessors in the genitive in historical texts.

(248) *ok*   *diäfwl-en*   *vppinbaradhis j*   **en-na**   **quinn-o**   **liknilse**
       and   devil-DEF   appeared   in   INDF-GEN   woman-OBL   form

ok	*synti-s*	*hanum*	*idhkelika*	*j*	*tholiko*	*liknilse [...]*
and	showed-REFL	3SG.DAT.M	incessant	in	such	form

[9 lines later in the text]

Thät	*war*	*en*	*riddare*	*som*	*het*	*troillus*	*ok*	*war*
there	was	INDF	knight	that	was.called	Troillus	and	was

the	*quinn-onna*	*frände*	*som*	*diäfwl-en*	*taladhe*	*j*
DEF	woman-DEF.GEN	relative	that	devil-DEF	spoke	in

som	*nu*	*för*	*sagdhi-s*	*aff*
who	now	before	said-REFL	about

'And the devil appeared in the form of a woman and showed himself to him incessantly in such form. [...] There was a knight who was called Troillus and he was the relative of the woman through whom the devil spoke and who was mentioned before.' (SV_Jart, Period II)

(249)

oc	*som*	*gudh*	*vilde*	*com*	*thær*	*en*	*stor*	*hærra*
and	as	God	wanted	came	there	INDF	great	lord

ridhandes [...]
riding

[7 lines later in the text]

en	*vng-ir*	*riddare*	*som*	*var*	*hærra-n-s*	*brodhir*
INDF	young-NOM	knight	who	was	lord-DEF-S	brother

han	*fik*	*oloflik*	*kiærlek*	*til*	*hænne*
3SG.M	got	forbidden	love	to	3SG.DAT.F

'and as was God's will there arrived a great lord [...] a young knight who was the lord's brother, he felt forbidden love for her' (DA_ST, Period II)

In accordance with information-structural constraints, what is given in the discourse is usually placed earlier in a string of elements, since familiar information is easier to process than new information. Taking that into account, we can hypothesize that possessors in the genitive will usually be given, while head nouns will usually be new, as this seems to be the most efficient and economical way of introducing referents in possessive relations. Thus, just as with definiteness, topicality is connected to the prepositioning of elements within a phrase (Stroh-Wollin 2015). Table 29 illustrates the four combinations of given and new possessor (PR) and possessum (PM) referents in Danish and Swedish across the entire corpus. Here, I exclude possessors in the genitive that are postposed in the oldest texts in the corpus (see Table 17 in section 5.2.1), as the prenominal placing of genitives is of importance when we consider topicality.

Table 29. Topicality in combinations of possessor (PR) and possessum (PM) in the genitive construction in Danish and Swedish

Topicality combinations	Danish	Swedish
GIVEN PR + GIVEN PM	183	187
	26.7%	25.7%
GIVEN PR + NEW PM	299	315
	43.6%	43.2%
NEW PR + NEW PM	178	204
	25.9%	28.0%
NEW PR + GIVEN PM	26	23
	3.8%	3.2%
Total	686	729
	100.0%	100.0%

Again, the results show no significant differences across the two languages studied here. Around one-fourth of all genitives are instances in which both the possessor and the possessum are previously referred to in the text. In accordance with the hypothesis based on information structure, the majority of genitive constructions introduce new head nouns either by means of anchoring them in given possessors (ca. 43%) or by anchoring them in new, first-mention possessors (ca. 27%). Only 3.5% of genitive constructions involve a new possessor and a given possessum.

Further, as mentioned in Chapter 4 (section 4.1.3), the definiteness of the referent and its givenness will not necessarily coincide in historical texts, as it happens to do in examples (248–249) above. Table 30 illustrates the distribution of definiteness values among given and new possessors in the genitive in Danish and Swedish across the entire corpus.

Table 30. Distribution of definiteness values among given and new possessors in the genitive in Danish and Swedish

Definiteness	GIVEN	NEW
PROPER NAME	354	94
	35.7%	21.1%
DEFINITE	335	111
	33.8%	24.9%
POSSESSIVE	138	57
	13.9%	12.8%
INDEFINITE	38	93
	3.8%	20.9%
ZERO-MARKED	127	91
	12.8%	20.4%
Total	992	446
	100.0%	100.0%

$\chi^2 = 138.771$, *df* = 4, *p* < 0.001

The statistically significant differences that we observe in Table 30 are the following: on the one hand, there are more explicitly definite and proper name NPs among given possessors, and on the other hand, there are more indefinite and bare NPs among new possessor referents. The two most counter-intuitive cases here are given referents that are indefinite (subsequent-mention indefinites, in the terms of Fraurud 1990) and new referents that are definite (first-mention definites), the latter of which has a relatively high frequency among new referents. In the case of subsequent-mention indefinites and bare NPs, these are usually examples of generic referents, such as *gud* 'God', or unique referents, such as *konung* 'king', *heradzhofding* 'county chieftain', or *biskop* 'bishop'. In example (250), curiously, the first mention of a referent is a definite NP (the bishop was not explicitly mentioned earlier in the text) and the second mention is a bare NP, even though both mentions are within the same sentence. Here, however, syntactic factors may be at play: the first mention is a subject while the second mention is a genitival modifier. Otherwise, except for generic and unique referents, subsequently mentioned common noun referents are predominantly modified either by determiners (definite article, demonstratives, and possessives) or, at the very least, by prenominal adjectives.

(250) *Siþan   hon   hafþe þer   nokor ar   varit   þa   bøþ   **biscop-en***
         since   3SG.F had   there some   year been   then ordered   bishop-DEF

       at   all-a   iuffru   upfødes   ii   gu-z   mønstar   ok   tel
       that   all-PL maiden.PL   raised   in   god-S   monastery and   to

       aldar   varo   komna   skuldo hem   fara   ok   man-nom
       age   were   come.PTCP   should home   travel and   man-DAT.PL

       *fœsta-s   all-a   iugfru   sagþo   ia   viþ   **biskop-s**   buþi*
       betroth-PASS   all-PL maiden.PL   said   yes   to   bishop-S   command
       'As she had been there for around a year, the bishop ordered that all maidens raised in God's monastery and who were of age should travel home to be betrothed. All maidens said yes to the bishop's command.' (SV_Bur, Period I)

In the case of first-mention definites, Fraurud (1990: 422) points out that these are usually examples of relational or anaphoric NPs. Such definite referents have a relation to a previously mentioned referent, although that relation may not be explicitly spelled out, or they are anchored not in a particular referent, but rather in discourse-situation or lexico-encyclopaedic knowledge associated with the head noun of the NP. Example (251) illustrates an indirect anaphor in which two newly introduced definite referents are anchored in a previously mentioned duel that was taking place at the same time in the story.

(251) *Tha   hördhe en   orm   som   haffdhe   skylt   sik   i   mwr-en*
         then   heard INDF   snake that   had   hidden REFL in   wall-DEF

       häst-anna   bang   oc   ***riddar-ana***   stiim [...]*
       horse-DEF.GEN.PL   rumble   and   knight-DEF.GEN.PL   noise

'Then a snake, which had hidden itself in the wall, heard the horse's rumble and the knights' noise [...]' (SV_SVM, Period II)

Interestingly, in the present study the majority of first-mention (new) definites are not examples of indirect anaphors, but of relational or generically used NPs, such as *wæruldenna helsara* 'the world's saviour' (SV_Bur, Period I), *stiärnornas gang* 'the stars' path' (SV_Troja, Period III), *natzsens mörker* 'the night's darkness' (SV_Troja, Period III). The analysis of the types of possessive relations that occur with first-mention definite possessors reveals that 46.8% of them are instances of ABSTRACT possession. These include examples such as *fridzens tanckar* 'thoughts of peace' (lit. 'the peace's thoughts'; SV_Arn, Period IV), *fredhsens Gudh* 'God of peace' (lit. 'the peace's God'; SV_JS, Period IV), *Menniskens paafund* 'the man's invention' (DA_FA, Period IV). Note that these abstract possessive NPs also include generic possessors. The second largest group among first-mention definites is that comprising examples of ATTRIBUTIVE possession. Here we find relational NPs such as *troens fructher* 'the faith's fruit' (DA_KO, Period IV), *hiertans trohet* 'the heart's fidelity' (SV_HS, Period IV), *menniskens retferdighed* 'the man's righteousness' (DA_KO, Period IV). In sum, the vast majority of newly introduced possessors that are definite are used generically. In addition, the results here confirm that both Danish and Swedish have a tendency to mark abstract nouns with definite forms, as mentioned in section 5.3.2 (cf. Hansen 1967; Perridon 1989).

5.3.4 Length of phrase

Another factor of potential consequence for the genitive construction is the length of the NP. This variable is based on the Principle of End Weight, which stands on the premise that a longer (or heavier) constituent will follow the shorter one in an NP or a construction. It has been argued that speakers will prefer possessive constructions in which the longer of the two NPs (possessor and possessum NPs) will occur second (Hinrichs & Szmrecsanyi 2007: 438), as in the following examples.

(252) *världshistori-en-s   störst-a   ickevåldsrevolution*
       world.history-DEF-S   biggest-WK   non.violent.revolution
       'The biggest non-violent revolution in the world's history'

(253) *en   bild   av   det   kyrklig-a   språkbruk-et*
       INDF   picture   of   DEF   ecclesiastical-WK   language.use-DEF
       'a picture of ecclesiastical language use' (Piotrowska 2021: 117)

Studies on genitive variation in English confirm that the length of the phrase is a statistically significant factor for the selection of the s-genitive and the prepositional construction (Rosenbach 2002; 2005; Hinrichs & Szmrecsanyi 2007). If the possessum phrase is longer than the possessor phrase, the s-genitive will be the preferred option; if the possessor phrase is longer, the prepositional construction will be preferred, as in examples (252) and (253). Since there is still no actual competition between the genitive construction and PPs in the historical

corpus, I will not be comparing the two constructions with respect to the lengths of NPs. I will, however, briefly present the factor of length in relation to the genitive construction.

In the present study the length of the phrase is measured by the number of syllables. A syllable is defined as a constituent that includes one vowel, that is, constituents of type V, CV, VC, or CVC, in which the number of consonants is unlimited (for example, the sequence CCVCC still constitutes one syllable, as in the Swedish adverb *snabbt* 'fast'). The weight or complexity of the NPs, for example whether or not they are pre- or postmodified, is not taken into consideration here.

Table 31 illustrates means and other relevant measures for the length of PR and PM phrases in the genitive construction in Danish and Swedish. Instances in which the possessor phrase is postposed (see section 5.2.1) are excluded from the results.[22] Contrary to the hypothesis that longer phrases follow shorter ones, the PM phrases are on average shorter than the PR phrases in both languages. The results for Swedish and Danish are very similar, the only difference being the range of PM length, which is greater in Swedish than in Danish. The range itself, however, has little bearing on the means. To confirm that the differences in the mean length of possessor and possessum phrases in genitive constructions are statistically significant, a paired *t*-test was conducted. The null hypothesis is that there are no differences in the means. The test finds that there is a significant average difference of 0.6 syllables between the lengths of PRs and PMs in Swedish (*t* = 8.310, *df* = 728, *p* < 0.001), and a significant average difference of 0.5 syllables in Danish (*t* = 6.017, *df* = 685, *p* < 0.001). Further, there are no statistically significant differences in the length of phrases in genitive constructions between Danish and Swedish.

Table 31. Length of PR and PM phrases in Danish and Swedish genitive constructions

Statistics	Danish		Swedish	
	PR LENGTH	PM LENGTH	PR LENGTH	PM LENGTH
N	686	686	729	729
Mean	**3.03**	**2.50**	**3.06**	**2.45**
Median	3.00	2.00	3.00	2.00
Std. Deviation	1.743	1.785	1.639	1.711
Range	14	12	11	17
Minimum	1	1	1	1
Maximum	15	13	12	18

Interestingly, both in Danish and Swedish there is a correlation between the length of PR and the length of PM. In both cases the association is positive, meaning that when the length of the possessor increases, the length of the possessum also increases. The correlation is somewhat stronger in the Swedish corpus (a correlation of 0.249 with *p* < 0.001 for

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[22] The hypothesis regarding the Principle of End Weight is that the phrase occurring later in an NP will be the longer constituent. In the case of a regular genitival construction, the PM phrase occurs second. I exclude postposed genitives here, as in these examples we would expect the opposite to be true: the PR phrase that occurs later in an NP would be expected to be longer than the PM phrase.

Swedish and 0.146 with $p < 0.001$ for Danish). The frequencies of particular lengths measured in syllables are given in Figures 18 and 19; the charts confirm the correlation.
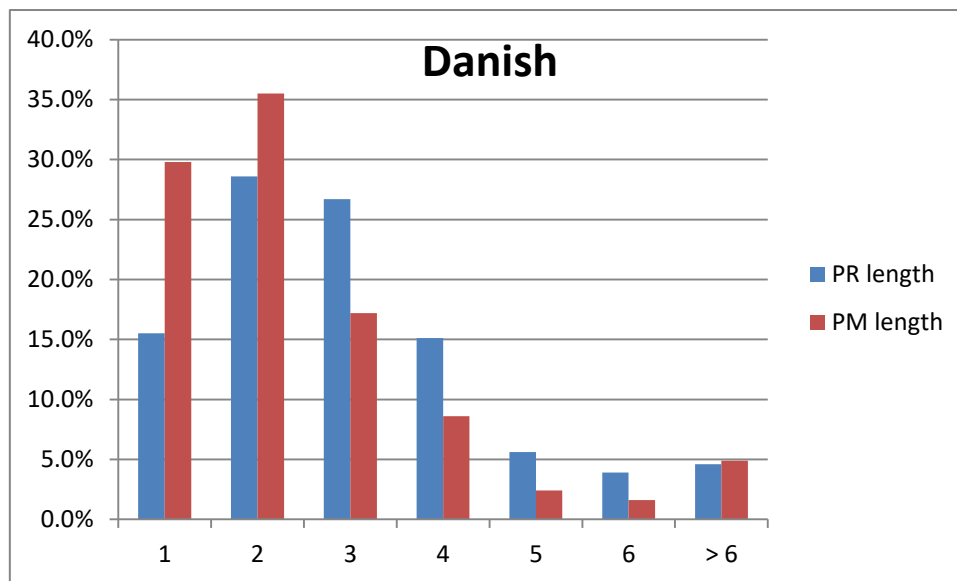
Figure 18. Lengths of Danish PR and PM phrases in the genitive
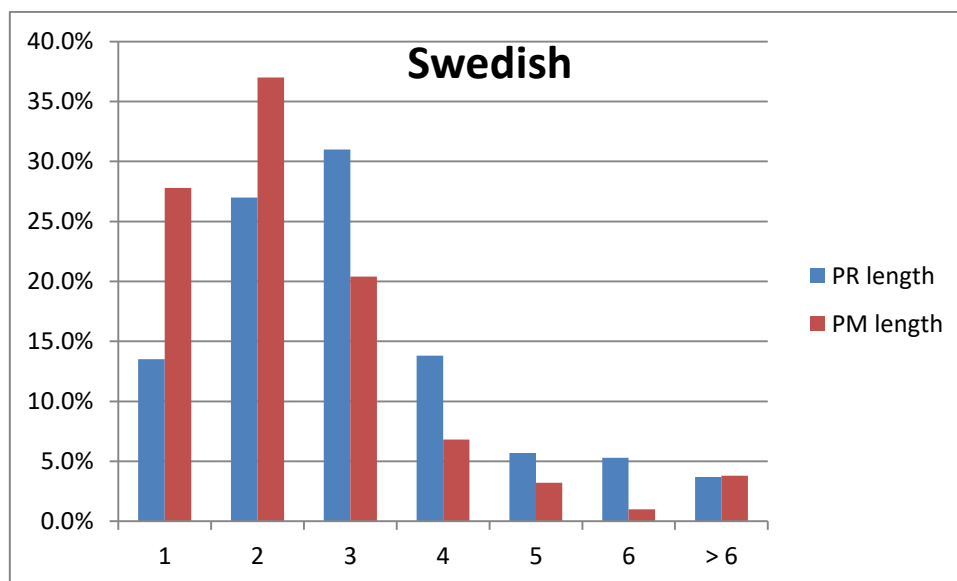
Figure 19. Lengths of Swedish PR and PM phrases in the genitive

There is thus a tendency for genitival constructions to be quite balanced, namely, one- to three-syllable-long possessor phrases will usually be followed by one- to three-syllable-long head nouns, as in (254), although there are numerous examples of PRs being considerably longer than PMs and vice versa, as in (255).

(254) *Tha   timdhe   thet   soa   om sidær   met   **deffuel-s   villel-s** [...]*
       then   happened   3SG.N   so   eventually   with   devil-s   will-s
       'Then it eventually happened according to the devil's will [...]' (Da_Mar, Period II)

(255) | *Här* | *äpther* | *opwäktes* | ***gambl-a*** | ***owen-zs-en-s*** | ***onzska*** |
|---|---|---|---|---|---|
| here | after | awoke | old-WK | enemy-S-DEF-S | spite |

moth	***iomffrw-nna-s***	***dygdhelik-a***	***gärnigg-om***
against	maiden-DEF-S	virtuous-PL	deed-DAT.PL

'Hereafter awoke the old enemy's spite at the maiden's virtuous deeds.' (SV_Linc, Period III)

Overall, there is a tendency in both languages for PMs to be shorter than PRs in the genitive construction. Given the absence of a competing construction in Old Danish and Old Swedish that could facilitate the processing of possessive constructions with longer PRs — like the prepositional phrase construction in the present-day Germanic languages — the length of the phrase does not seem to be an important variable for the genitive construction.

5.3.5 Other variables: number, countability, concreteness

To further explore the genitive construction in Old Danish and Swedish, I will turn to three variables that are not generally explored in regard to possessive expressions, namely the number, countability and concreteness of the possessor referent. These categories are not expected to have a significant impact on the distribution of the genitive. They are included in the dataset because the ending *-s* was undergoing the grammaticalization process in the periods studied here, and it is thus worthwhile to explore whether the construction favoured certain types of referents as possessors in its early stages of development. In this section Danish and Swedish genitive constructions are taken together, as there are no statistically significant differences between the two languages in the contexts explored here.

	SG genitive	SG overall	PL genitive	PL overall
IV	84.1%	78.0%	15.9%	22.0%
III	90.1%	82.8%	9.9%	17.2%
II	93.4%	81.6%	6.6%	18.4%
I	85.8%	80.3%	14.2%	19.7%
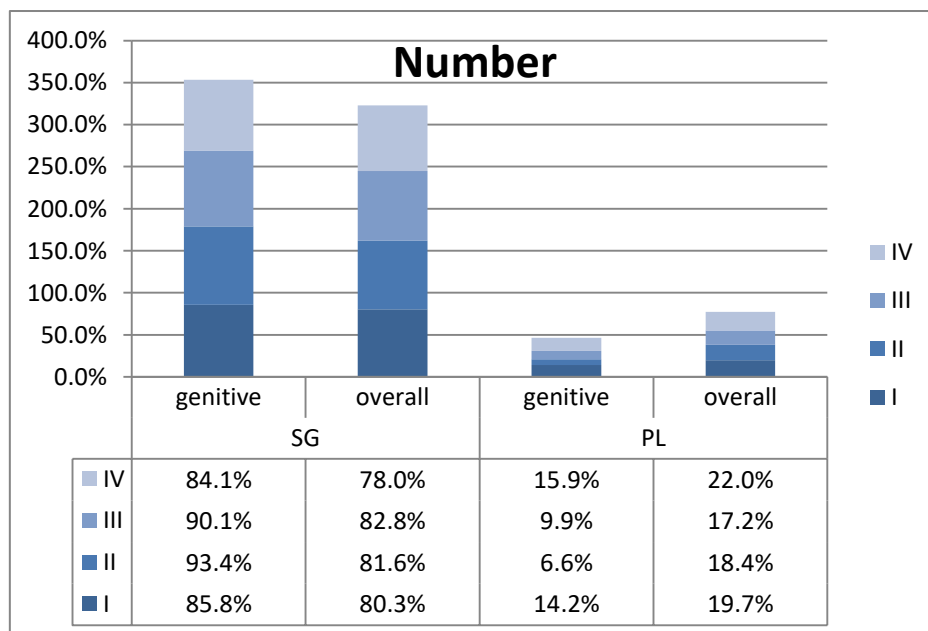
p < 0.001 for SG; *p* < 0.001 for PL

Figure 20. Relative frequencies of singular and plural referents among possessors in the genitive and all referents in Danish and Swedish

Figure 20 illustrates relative frequencies of singular and plural referents among possessors in the genitive and overall referents in the corpus. Singular and plural possessors in the genitive in each period constitute 100.0%[23] and singular and plural referents overall constitute 100.0% in each period.[24]

A two-tailed *t*-test was performed to test the null hypothesis that there are no significant differences in the proportions of singular and plural referents between uses of the genitive and the overall dataset. The test found statistically significant differences for both singular and plural (at the level of $p < 0.001$), which means that the particular proportions in the genitive are significantly different from the overall proportions. In all periods singular referents are overrepresented in the genitive and plural referents are consistently underrepresented. Thus, the genitive construction favours singular referents as possessors, which may be due to the degrammaticalization path of the ending *-s*. As mentioned before (see section 5.2.1), the ending *-s* stems from a genitive ending that was used solely for singular masculine and neuter nouns. The ending spread to singular nouns before it began to be used with plural nouns. In the present corpus, among plural possessors in the genitive the vast majority are human referents, especially in texts from Periods I and II; the older genitive case endings are usually used with such referents, as in (256). In later periods the ending *-s* becomes the norm even for plural inanimate referents, as in (257).

(256) *Dör*   ***mothær***   ***born-æ***   *tha*   *ma*   *ey*   *fathur af hændæ*
        dies   mother   child.PL-OBL.PL   then   may   not   father sell

        born-æ   ***sin-æ***   ***möthrini-s***   ***iorth***.
        child.PL-OBL.PL   REFL.POSS-PL   maternal-S   land
        'If the children's mother dies then the father may not sell his children's mother's land.' (DA_SL, Period I)

(257) *oc*   *wisthe grant*   *aff*   ***hymbla-na-s***   ***lop***   *oc*   ***planet-er-s***   *oc*
        and   knew   much   about   sky.PL-DEF.PL-S   course   and   planet-PL-S   and

        stiärn-or-s   ***gang***   *oc*   ***rörelse***
        star-PL-S   path   and   movement
        'and knew a lot about the course of the skies and the planets' and stars' path and movement' (SV_Troja, Period III)

Figure 21 illustrates relative frequencies of countable and mass referents among possessors in the genitive and overall in the corpus. The results are presented in the same way as for the factor of number, namely referents in the genitive constitute 100.0% in each period and overall referents also constitute 100.0% in each period (see footnotes 23 and 24 for the exact numbers of cases).

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[23] Number of cases in the genitive for each period: I. N = 309, II. N = 241, III. N = 272, IV. N = 675.
[24] Number of cases overall for each period: I. N = 2,647, II. N = 2,434, III. N = 1,941, IV. N = 2,172.

	genitive	overall	genitive	overall
	COUNT		**MASS**	
IV	93.6%	82.8%	6.4%	17.2%
III	86.8%	79.9%	13.2%	20.1%
II	92.1%	85.0%	7.9%	15.0%
I	95.5%	89.1%	4.5%	10.9%
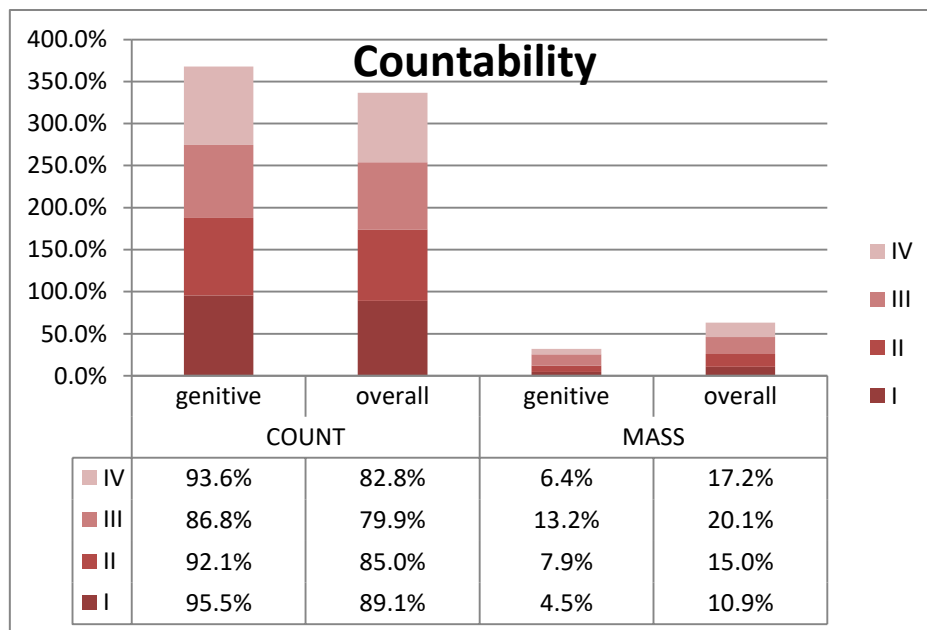
p < 0.001 for COUNT; *p* < 0.001 for MASS

Figure 21. Relative frequencies of countable and mass referents among possessors in the genitive and all referents in Danish and Swedish

A two-tailed *t*-test was again performed to test the differences between the genitive construction and the overall referents. The high statistical significance obtained for both categories (*p* < 0.001) allows us to reject the null hypothesis and state that there are in fact considerable differences. Similarly as with the factor of number, countable referents are consistently overrepresented in the genitive throughout the whole corpus, while mass nouns are markedly underrepresented. This variable is naturally highly correlated with the factor of animacy (chi-square test of independence, χ^2 = 343.492, *df* = 6, *p* < 0.001) — human possessors, most of which are expressed with countable NPs, constitute a majority of possessors in nearly all periods. Mass nouns are thus quite infrequent as possessors in the genitive; most of them are instances of abstract referents, as in (258), or referents denoting substances, as in (259).

(258) *wetandes,*   *at*   *thet*   *är*   *it*   *faaslig-t*   *lius,*   *som*
knowing   that   3SG.N   is   INDF   frightful-ST   light   that

mörkr-et-z   *ande*   *hafwer*
darkness-DEF-S   spirit   has
'knowing that the spirit of darkness has a frightful light' (SV_HS, Period IV)

(259) *konung-en-s*   *myndigheet*   *och*   *närvarelse*   *måtte*   *uthan*   *någon*
king-DEF-S   authority   and   presence   must   without   any

blod-z   *uthgiutelse*   *medh*   *lagh*   *och*   *rätt*   *blifva*   *stillat*
blood-S   spillage   with   law   and   justice   be   constituted
'the king's authority and presence must be constituted with law and justice without any blood spillage' (SV_CCG, Period IV)

Lastly, relative frequencies of concrete and abstract referents in the genitive construction and in the overall dataset are illustrated in Figure 22. The same numbers of cases apply here as for the previous two factors (see footnotes 23 and 24).

Concreteness

	CONCR		ABSTR	
	genitive	overall	genitive	overall
IV	73.1%	56.4%	26.9%	43.6%
III	61.4%	66.0%	38.6%	34.0%
II	61.2%	70.1%	38.8%	29.9%
I	76.8%	80.2%	23.2%	19.8%
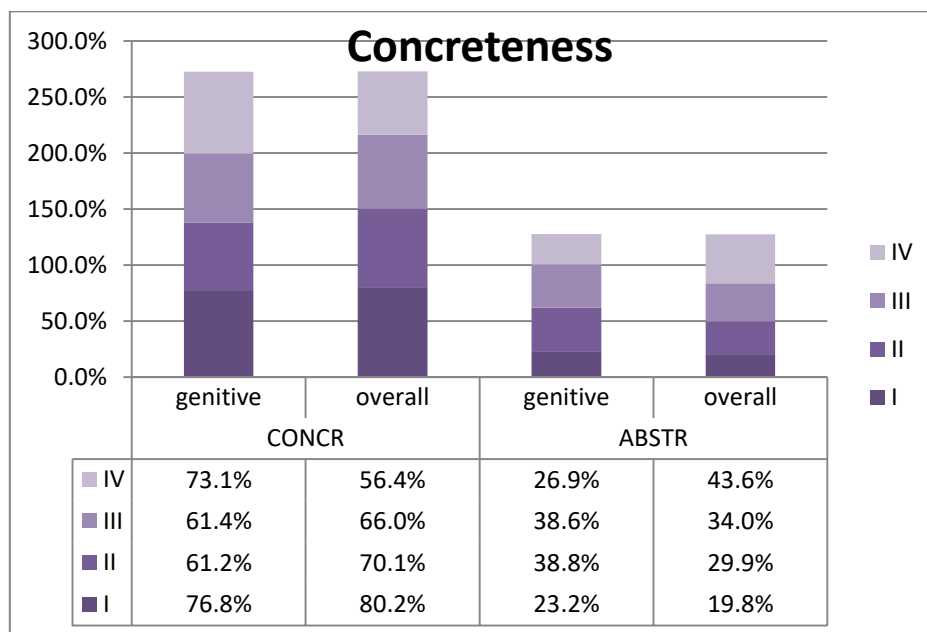
p < 0.005 for CONCR; *p* < 0.005 for ABSTR

Figure 22. Relative frequencies of concrete and abstract referents among possessors in the genitive and all referents in Danish and Swedish

A two-tailed *t*-test reveals that the differences in proportions between the genitive construction and overall data are statistically significant ($p < 0.005$). Abstract nouns are, quite unexpectedly, overrepresented in the genitive in Periods I–III, while concrete nouns are somewhat underrepresented. This is most likely due to the presence of religious texts in the corpus and the general themes found in texts from the 13th to the 16th century. The majority of abstract possessors are thus related to religion (for example, *gud* 'God', *deffuel* 'devil', *cristendom* 'Christianity', *synd* 'sin', *siel* 'soul', *himmerigi* 'heaven', and so on) or to emotions and virtues (for example, *øtmyghet* 'humility', *kærlighet* 'love', *blyghet* 'shyness', and so on). In the last period, in which there are not as many religious texts in the corpus, the proportion of abstract possessors is considerably lower than the overall proportion of abstract referents. In this period, a variety of abstract referents not connected to religion may be found, as in (260) and (261).

(260) *at   de   ingenlunde   kand   med   Arbeyd   fortiene   deres*
     that   3PL   no way   can   with   work   earn   3PL.POSS

     Liv-s   Ophold
     life-S   subsistence
     'that they can in no way earn their life's subsistence with their work'
     (DA_FOB, Period IV)

(261) *Till   ydermere   **sandhed-s   bekiendelse**   haffue wy   Christiann*
       to   further   truth-S   confession   have 1PL   Christian

      Konning   ladet her   wnderhenge   wor   Maiestati-s   indzegell
      king   placed here under.hang   1PL.POSS   majesty-S   sigil
      'For the further assertion of the authenticity have we, King Christian, placed here the Majesty's sigil.' (DA_KO, Period IV)

In this section I demonstrated that the genitive construction in Danish and Swedish texts written between the 13th and 18th centuries favours singular and countable referents as possessors. The construction also seems to favour abstract referents, although this result is heavily influenced by the presence of religious texts in the corpus, which is confirmed by a statistically significant association of the factor of concreteness with the text genre, revealing that most abstract possessors occur in religious texts (the chi-square test of independence, $\chi^2 = 236.823$, $df = 2$, $p < 0.001$). Neither number nor countability is correlated with genre at a significant level, proving that these factors are independent of text type.

5.3.6 Summary
Based on the results presented in the sections above we can now identify the typical, or at least the most frequent, possessor referents in the genitive construction in Danish and Swedish texts written between 1250 and 1700. Table 32 illustrates the most common characteristic features of possessors. The factors of length and concreteness are excluded from the table, as the tests of their influence on the genitive construction provided inconclusive results. In Chapter 6 the image of a typical genitive possessor presented here is compared and confronted with the typical s-genitive possessor found in present-day texts.

Table 32. Characteristics of a typical possessor referent in genitive in Danish and Swedish

Variable	Possessor referent
ANIMACY	Animate (human)
DEFINITENESS	Definite or proper name
TOPICALITY	Given
NUMBER	Singular
COUNTABILITY	Countable

In the next section I explore the semantic notions of possession found in possessive expressions in the historical corpus of Danish and Swedish.

5.4 Semantic notions of possession

The particular semantic notions of possession identified in this study are described in detail in Chapter 2 (see example (26) and Figure 1, section 2.1) and in Chapter 4 (see 4.3.2). The aim of this section is twofold. The objective is, firstly, to explore whether or not different semantic notions of possession favour a particular possessive construction, and secondly, to investigate whether or not the frequencies of particular notions change over time and between the genres of texts in the corpora. The analysis of changes in the frequency and distribution of notions of possession will allow me to test one of the hypotheses of the present study (see sections 1.2 and 4.1.4), namely Hypothesis C, repeated here in (262).

(262)   *Hypothesis C*
        In historical texts, the adnominal possessive constructions are used more frequently for expressions of prototypical notions of possession than for expressions of more marginal notions. Thus, the use of possessives advances from prototype to periphery.

        The prototypical notions, especially KINSHIP and PART–WHOLE relationships, reflect, in terms of iconicity, a closer bond between the PR and PM referents. The conceptual distance between the referents in these relationships is much smaller than in more peripheral relationships such as ABSTRACT or LOCATIVE possession. I assume thus that the possessive notions that are more iconic (i.e. exhibiting a close bond between PR and PM referents) will be more frequently expressed with attributive possessives in the oldest extant texts, as these possessive relations are at the core of the notion of possession as a whole. Since the prototypical notions include relational NPs, it is more economical (easier to process) for the relation between the referents to be spelled out in a possessive construction.

5.4.1 Notions of possession and constructions used to express them
Tables 33 and 34 illustrate the distributions of possessive notions among different possessive constructions in the Danish and Swedish corpora.

Table 33. Distribution of notions of possession among possessive constructions in the Danish corpus (1250–1700)

Notions of possession	Genitive	Possessive pronouns	Reflexive pronouns	Prepositional phrases	Total
OWNERSHIP	42	**91**	68	0	201
	20.9%	**45.3%**	33.8%	0.0%	100.0%
KINSHIP	90	**184**	106	0	380
	23.7%	**48.4%**	27.9%	0.0%	100.0%
PART–WHOLE	42	**88**	46	2	178
	23.6%	**49.4%**	25.8%	1.1%	100.0%
SOCIAL ROLE	76	**185**	56	0	317
	24.0%	**58.4%**	17.7%	0.0%	100.0%
CONTROL	19	**30**	12	0	61
	31.1%	**49.2%**	19.7%	0.0%	100.0%

Notions of possession	Genitive	Possessive pronouns	Reflexive pronouns	Prepositional phrases	Total
ABSTRACT	**232**	194	78	2	506
	45.8%	38.3%	15.4%	0.4%	100.0%
ATTRIBUTIVE	**89**	**92**	33	3	217
	41.0%	**42.4%**	15.2%	1.4%	100.0%
LOCATIVE	**92**	1	0	33	126
	73.0%	0.8%	0.0%	26.2%	100.0%
TEMPORAL	**14**	0	0	0	14
	100.0%	0.0%	0.0%	0.0%	100.0%
Total	696	865	478	40	2,000
	34.8%	43.3%	23.9%	2.0%	100.0%

$\chi^2 = 681.593$, $df = 24$, $p < 0.001$

Table 34. Distribution of notions of possession among possessive constructions in the Swedish corpus (1250–1700)

Notions of possession	Genitive	Possessive pronouns	Reflexive pronouns	Prepositional phrases	Total
OWNERSHIP	45	**96**	69	4	214
	21.0%	**44.9%**	32.2%	1.9%	100.0%
KINSHIP	58	**120**	90	0	268
	21.6%	**44.8%**	33.6%	0.0%	100.0%
PART–WHOLE	62	**81**	44	14	201
	30.8%	**40.3%**	21.9%	7.0%	100.0%
SOCIAL ROLE	72	**140**	88	2	302
	23.8%	**46.4%**	29.1%	0.7%	100.0%
CONTROL	26	**30**	25	1	82
	31.7%	**36.6%**	30.5%	1.2%	100.0%
ABSTRACT	**224**	151	104	3	482
	46.5%	31.3%	21.6%	0.6%	100.0%
ATTRIBUTIVE	**148**	100	58	3	309
	47.9%	32.4%	18.8%	1.0%	100.0%
LOCATIVE	**99**	0	0	29	128
	77.3%	0.0%	0.0%	22.7%	100.0%
TEMPORAL	**13**	0	0	1	14
	92.9%	0.0%	0.0%	7.1%	100.0%
Total	747	718	478	57	2,000
	37.4%	35.9%	23.9%	2.9%	100.0%

$\chi^2 = 488.751$, $df = 24$, $p < 0.001$

In both languages the first four notions of possession in the tables are most frequently expressed with regular possessive pronouns. These notions include the three prototypical notions and the SOCIAL ROLE relationship, which is semantically very close to the KINSHIP relation, as it also includes human PR and PM referents expressed through relational NPs (such as *friend, chief, king*). As mentioned above, I argue that the prototypical notions

demonstrate the closest bond between the PR and PM referents in terms of iconicity, as the semantics of the head NP (the presence of relational referents or inanimate referents that are prototypically human possessions, such as *house*, *land*, *property*) often presuppose the use of possessives. Further, the possessor referents of relational head NPs (in relations of KINSHIP, PART–WHOLE and SOCIAL ROLE) are often given, previously mentioned referents, as in examples (263) and (264). In these examples it is the head noun that is the focus of the clause, not the possessor referent. It thus seems that referring back to such referents by means of pronouns is most economical, since repeating the full NP is often redundant.

(263) | *Thet* | *war* | *en* | *timæ* | ***en*** | ***hellugh*** | ***møø*** | *aff* | *tyræ* | *ther* |
|---|---|---|---|---|---|---|---|---|---|
| there | was | one | time | INDF | holy | maid | of | Tyr | who |

hob	*hafdæ*	*til*	*Vorherræ [...]*	***Hennis***	***fader***	*var*	*aff*	*høgh*
hope	had	to	our.lord	3SG.POSS.F	father	was	of	high

slæct	*oc*	*han*	*var*	*ridd-er-s*	*forman*	*oc*	*mester*
family	and	3SG.M	was	knight-PL-S	headman	and	master

'There was one time a holy maid of Tyr who had a hope to Our Lord [...]. Her father was of high family, he was knights' chief and master.' (DA_Kerst, Period II)

(264) | *Oc* | *swa* | *ledhir* | *laban* | ***mann-en*** | *til* | *hærbærghi-s* | *oc* | ***hans*** |
|---|---|---|---|---|---|---|---|---|
| and | so | leads | Laban | man-DEF | to | shelter-S | and | 3SG.POSS.M |

følghe	*oc*	*fordar*	***hans***	***uluald-a***	*oc*	***hans***
company	and	leads	3SG.POSS.M	camel-PL	and	3SG.POSS.M

thing	*oc*	***hans***	***mæn***	*oc*	*latir*	*twa*	***thera***
thing.PL	and	3SG.POSS.M	man.PL	and	lets	wash	3PL.POSS

føtir
foot.PL

'And so Laban leads the man to a shelter and with him his company and his camels, his things and his men, and lets them wash their feet.' (SV_Pent, Period I)

The next four notions of possession in Tables 33 and 34, namely ABSTRACT, ATTRIBUTIVE, LOCATIVE, and TEMPORAL possession, are predominantly expressed with the genitive construction, with the exception of ATTRIBUTIVE possession in Danish, where the proportions of uses of the genitive and possessive pronouns are nearly identical (with pronouns dominating by merely three examples). On the prototype–periphery scale these four notions are certainly peripheral, as the head nouns are not relational and the possessor referents are often inanimate, or even obligatorily inanimate in the case of LOCATIVE and TEMPORAL possession. It thus seems that the further we get from the prototype, the more often the genitive is used instead of possessive pronouns. This might be due to the fact that the more peripheral notions of possession include PR and PM referents that are less obvious and less expected in possessive constructions. According to both the iconic and the economic motivations in language (Givón 1995b; see section 4.1.2), less predictable information will receive more coding material. The more mental effort is required to process certain

information, the more linguistic coding is needed to express it. The peripheral notions are certainly less predictable in possessive constructions than say KINSHIP or PART–WHOLE relationships, and thus their possessor referents require more coding, in the form of full genitival NPs rather than pronominal NPs. In the case of LOCATIVE and TEMPORAL possession, the genitive construction and the prepositional construction are virtually the only possibilities in both Danish and Swedish, with the genitive strongly dominating. These two notions include exclusively inanimate possessor referents, as in examples (265) and (266). The use of pronouns here is excluded on the grounds of the inanimacy of the PR referents, but also on the grounds of economic motivation — more coding is required for less predictable possessor referents, and inanimate locative or temporal NPs fulfil this condition. It has to be noted that the TEMPORAL notion of possession is overall very infrequent in the corpus, with only 14 examples in each language.

(265) | *For* | *at* | *bore* | *sig* | *ind* | *hos* | **Kong-en** | **af** | **Sverrig** *[...]* |
|------|------|-------|-------|-------|-------|------------|--------|-------------------|
| for | to | endear | REFL | in | to | king-DEF | of | Sweden |

'To endear himself to the king of Sweden [...]' (DA_URK, Period IV)

(266) | *thet* | *Hans* | *Maij:t* | *mehrendeels* | *giorde* | *hwar* | *lögedag* | *till* |
|-------|--------|---------|-------------|---------|--------|-----------|--------|
| DEM | 3SG.POSS.M | majesty | usually | did | each | Saturday | so |

at	*hafwa*	*någon*	*liten*	*recreation*	*efter*	**hela**	**weka-n-s**	**stor-a**
to	have	some	small	recreation	after	whole	week-DEF-S	great-WK

och	**trägn-a**	**beswär**
and	persevering-WK	problem.PL

'His Majesty did this every Saturday so that he had some small recreation after the whole week's great and persevering problems.' (SV_HS, Period IV)

Lastly, we consider the notion of CONTROL which in the study encompasses the notions of DISPOSAL and AUTHOR, as the latter is very infrequent in the diachronic corpus and does not merit its own separate category. In both languages the greatest proportion of instances of CONTROL is expressed with possessive pronouns, although in Swedish the proportions of uses of the genitive, regular pronouns and reflexive pronouns are all around 30%. This particular notion of possession has some aspects in common with both prototypical and peripheral notions of possession. It includes exclusively animate (most often human) possessors, but the head nouns are not relational and not necessarily easily predictable as possessum referents, as in examples (267) and (268).

(267) | *Trøgler-e* | *som* | *i* | *noget* | *Sogn* | *omløber* | *og* | *betler* | *og* | *ey* |
|-------------|-------|-----|---------|--------|-----------|------|----------|------|------|
| beggar-PL | who | in | some | parish | circulate | and | beg | and | not |

paa	**Sogne-Præst-en-s**	**Register**	*findes*	*optegnet [...]*
on	parish-priest-DEF-S	register	are	recorded

'Beggars who circulate and beg in a parish and who are not recorded on the parish priest's register [...]' (DA_FOB, Period IV)

(268) *Gick* *eendeel*   *utaf*   **Hans**   **Majestet-z**   **artillerie**   *med*
went   one.part   out.of 3SG.POSS.M   majesty-S   artillery   with

des   *behörige*   *ammunition*   *til*   *Malmö*
3SG.POSS.N   authorized   ammunition   to   Malmö
'A part of His Majesty's artillery went with their authorized ammunition to Malmö.'
(SV_HS, Period IV)

5.4.2 Notions of possession by period

Having explored the distribution of notions of possession among the use of different possessive constructions, I now turn to the distribution of possessive notions among the four periods of Old Danish and Old Swedish. Figures 23 and 24 illustrate the frequency of each category in each period; here all of the possessives within one period constitute 100.0%.
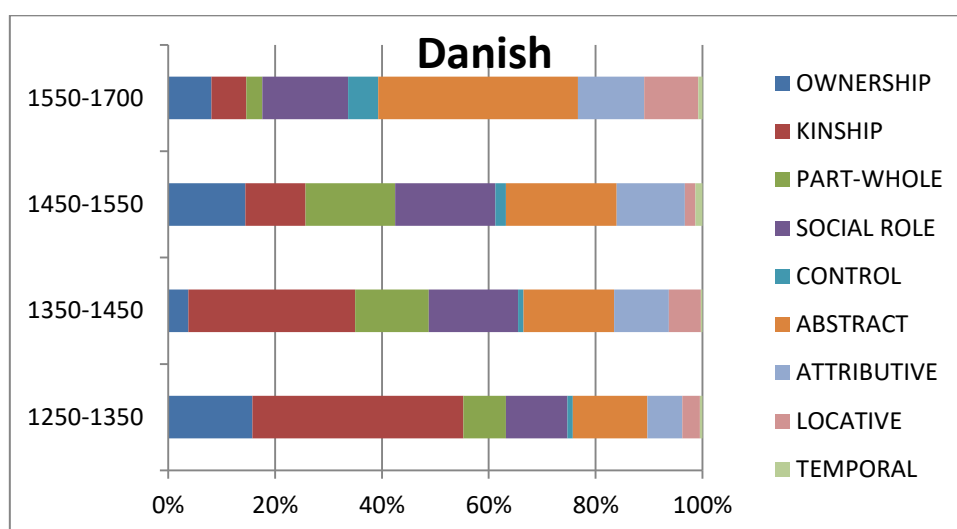
χ^2 =475.019, *df* = 24, *p* < 0.001

Figure 23. Relative frequency of possessive notions in four periods of the Danish corpus
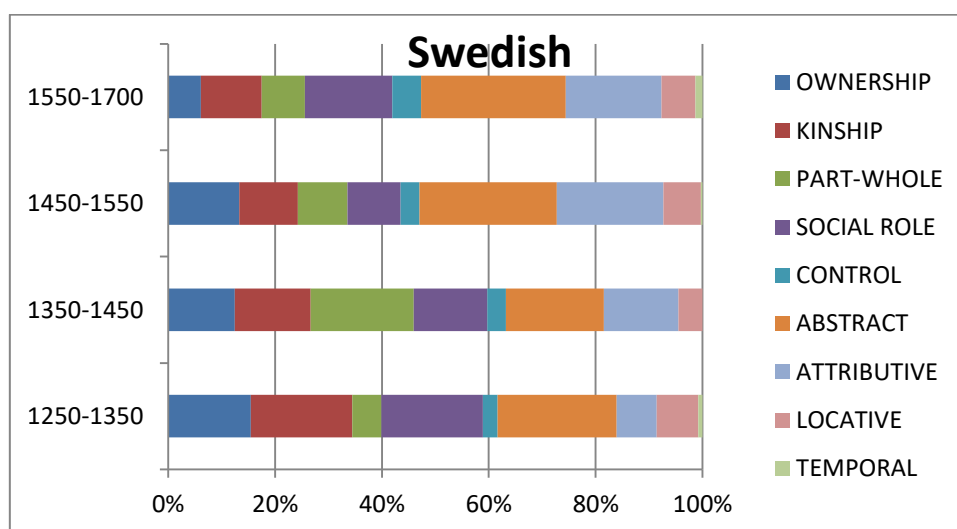
χ^2 =150.796, *df* = 24, *p* < 0.001

Figure 24. Relative frequency of possessive notions in four periods of the Swedish corpus

The first three colours on the graphs represent the prototypical notions of possession, as defined in Chapter 1 (section 2.1), namely OWNERSHIP, KINSHIP and PART–WHOLE relationship. In Danish (Figure 23) the three prototypical relations constitute over 60% of all possessive uses in Period I and over 40% in Periods II and III. In the last period the frequency of prototypical notions decreases considerably to less than 20% of all possessives in that period. This confirms Hypothesis C of the study (see (262)), namely that prototypical notions of possession are more frequently expressed with attributive possessives in the oldest historical texts and their frequency declines over time in favour of other, more peripheral possessive notions. The Swedish data presented in Figure 24 do not provide a similarly clear picture. In Period I and II prototypical notions constitute respectively 40% and 46% of all possessive uses; these are substantial proportions, but not nearly as high as in Danish in Period I. The use of prototypical possessive notions decreases in Period III to ca. 33% and further in Period IV to 25%. A decline in the use of possessives with prototypical notions is thus discernible between the first two and the last two periods, although the decline is not as steep as in Danish. Since in section 5.4.1 I determined that different possessive notions favour different possessive constructions, the differences in the use of the three prototypical notions between Danish and Swedish, especially in Period I, may explain the differences in the use of possessive constructions.

In section 5.2 (see Figures 14 and 15) we saw that there is a considerable difference in the use of the genitive construction and possessive pronouns (both regular and reflexive) between Danish and Swedish in the first period. In Danish the genitive was used in merely 28.5% of all possessive constructions in Period I, compared with 46.3% in Swedish. At the same time the use of pronouns was higher in Danish, where pronouns were used altogether in 71.5% of possessives, than in Swedish, where only 51.0% of possessives included pronouns. This discrepancy cannot be explained by any internal morphological or syntactical differences between Danish and Swedish, as there were no such differences. The explanation lies in the notions of possession that occurred in texts from that period in the corpus. The greatest difference between Danish and Swedish in the first two periods is the frequency of KINSHIP relationships (see Figures 23 and 24). KINSHIP uses constitute 39.5% of all possessives in Danish in Period I, but only 19.0% in Swedish in the same period. For this particular notion of possession, possessive pronouns are used more frequently than the genitive construction in both languages (see Tables 33 and 34). Since the notion of KINSHIP is so frequent in Danish texts from Period I, it follows that pronouns will also be frequent at the cost of the genitive use. Further, in Swedish in Period I the use of ABSTRACT possession is more frequent (22.3%) than in Danish (14.0%), and for ABSTRACT possession the genitive is the more frequently used construction. As for the question of why the KINSHIP relationship is so much more frequent in the Danish texts than in the Swedish ones, I will turn to this point in the next section.

In the case of peripheral notions of possession, we can see that both ABSTRACT and ATTRIBUTIVE possession are generally on the rise over the studied periods in both Danish and Swedish. As mentioned in section 4.3.2 (Chapter 4), these notions are placed relatively far from the prototype, as they involve an animate or inanimate PR referent and a non-concrete and non-physical PM referent (Benvenuto & Pompeo 2017: 508; see also Heine 1997; Stassen 2009). ABSTRACT possession includes expressions of people's activities, abilities, feelings, etc., as in (269), but also relationships between an inanimate PR referent and an abstract PM

referent expressed through deverbal nouns (for example, *a train's arrival*), as in (270). ATTRIBUTIVE possession includes PM referents that describe characteristics or traits of the PR referent, as in (271) and (272).

(269) | *Oc* | *som* | *gudh* | *wilde* | | *kom* | *ther* | *een* | *stoor* | *herra* | *ridhande* |
|---|---|---|---|---|---|---|---|---|---|---|
| and | as | God | wanted | | came | there | INDF | great | lord | riding |

oc	*hørdhe*	*hona*		*ropa*		*vnderstandande*		***thiænar-anna***
and	heard	3SG.ACC.F		scream		understanding		servant-GEN.PL

ond-a	***akth***	*læth*	*han*	*slaa*	*them*	*badha*	*j*	*hæl*
evil-WK	act	let	3SG.M	slay	3PL.ACC	both	to	death

      'And as was God's will there came a great lord riding and he heard her screaming. Understanding the servants' evil act he slayed them both.' (SV_ST, Period II)

(270) | *[...]* | *at* | *intet* | | *fravendi-s* | *eller* | *bortkommer* | *af* | | *hvis* |
|---|---|---|---|---|---|---|---|---|---|
| [...] | that | nothing | | deviate-REFL | or | lost.goes | of | | this |

til	***Kloster-et-s***		***underholding***
to	monastery-DEF-S		maintenance

      '[...] that nothing deviates or goes missing from the money that is the monastery's maintenance' (DA_RAJ, Period IV)

(271) | *Advocat-en* | *spurte* | *Bartholomeus* | *om* | | *Grev-en* | | *ikke* | *havde* | *talt* |
|---|---|---|---|---|---|---|---|---|---|
| lawyer-DEF | asked | Bartholomeus | if | | Count-DEF | | not | had | spoken |

med	*hannem*		*om*	***Tyrk-en-s***		***Troskab***
with	3SG.DAT.M		about	Turk-DEF-S		fidelity

      'The lawyer asked Bartholomeus if the Count had not spoken to him about the Turk's fidelity.' (DA_UCM, Period IV)

(272) | *tha* | *är* | *thz* | *forilande* | | *tiill* | *täss* | *ath* | ***nat-zs-en-s*** | | ***mörker*** |
|---|---|---|---|---|---|---|---|---|---|---|
| then | is | it | delayed | | until | then | that | night-S-DEF-S | | darkness |

skyler	*offwer*		*mark-ena*
veils	over		land-DEF.PL

      'Then it will be delayed until the night's darkness falls over the lands.' (SV_Troja, Period III)

Interestingly, the notion of ABSTRACT possession is the single most frequently expressed notion in both the Danish and Swedish corpora (see Tables 33 and 34). In Danish the ABSTRACT notion constitutes 25.3% of all possessives, while in Swedish it constitutes 24.1%. We observe the greatest rise in ABSTRACT possession over time in Danish, from 14.0% of all possessives in Period I to 37.4% in Period IV. In Swedish the rise is not as pronounced, since already in Period I ABSTRACT notions are quite frequent; they constitute 22.3% of all possessives in Period I and increase to 27.1% in the last period. On the other hand, the rise of

ATTRIBUTIVE possession over time is more conspicuous in Swedish (from 7.5% in Period I to 17.9% in Period IV) than it is in Danish (from 6.5% to 12.4%).

Not much can be said about the other peripheral notions, namely CONTROL, LOCATIVE, and TEMPORAL possession, as they are overall less frequent in the material. In Danish we observe a rise in the use of the notions of LOCATIVE and CONTROL possession, but no such pattern is discernible in Swedish.

5.4.3 Notions of possession by genre

Returning to the question of why there are significantly more examples of KINSHIP relationships in Danish in Period I than in Swedish, it is worthwhile to explore different notions of possession across the genres of the texts in the corpus (see Figures 25 and 26).
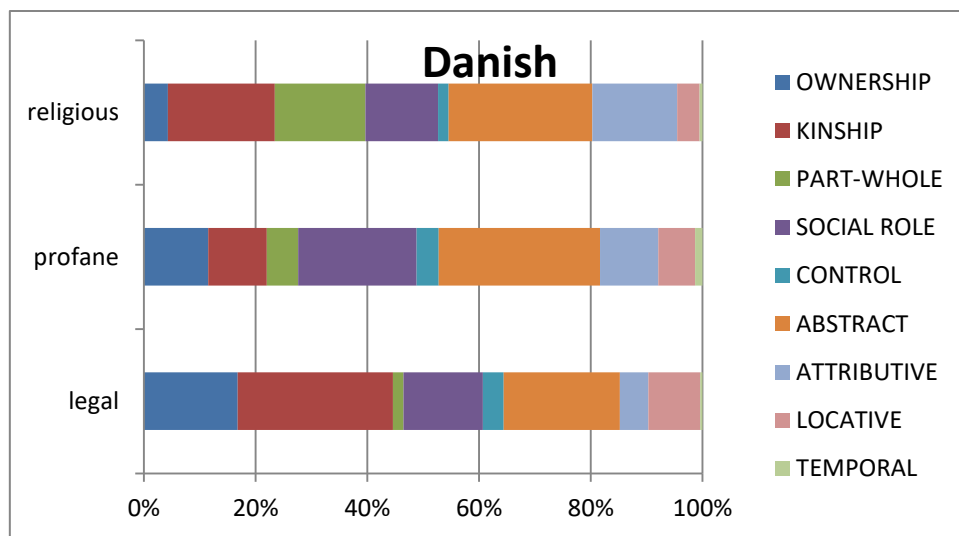
χ^2 =270.350, *df* = 16, *p* < 0.001

Figure 25. Relative frequency of possessive notions across the three genres in Danish
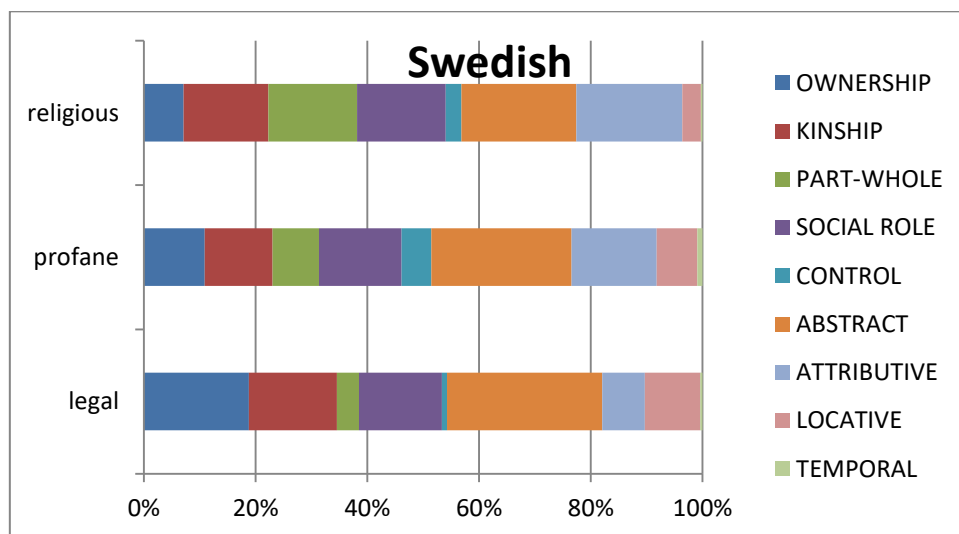
χ^2 =103.647, *df* = 16, *p* < 0.001

Figure 26. Relative frequency of possessive notions across the three genres in Swedish

Figures 25 and 26 clearly illustrate that there are no significant differences in the proportions of different notions between the genres of profane and religious prose. Overall, in both languages, religious prose exhibits a more frequent use of KINSHIP, PART–WHOLE and ATTRIBUTIVE possession, while profane prose exhibits a more frequent use of notions of OWNERSHIP, as well as LOCATIVE and TEMPORAL possession. However, these differences are not at all extreme. Within legal prose, on the other hand, we find a considerable discrepancy in Danish. Here, 27.8% of the possessives are examples of the KINSHIP relationship, against only 15.7% in Swedish. This is highly correlated with the period in which the texts originated, as legal texts are mostly instances of the oldest extant texts in these languages, and they occur in the Danish and Swedish corpora nearly exclusively in the first period (with the exception of four legal texts in Period IV in Danish). Despite efforts to build a highly comparable and balanced corpus of texts, the Danish legal texts from Period I include more passages from inheritance law (in the texts: *Eriks Lov*, *Valdemars Lov*, and *Skånelagen*), while the Swedish legal texts include, among others, one long passage from inheritance law (*Äldre Västgötalagen*) and two passages from marriage law (*Äldre Västgötalagen* and *Östgötalagen*), which might include just as many kin terms as inheritance law. In fact, in calculating the length of legal texts in the corpus in Period I, I find that while 52.9% of the Danish legal texts consists of inheritance law, as much as 45.0% of the Swedish texts comprises inheritance or marriage law. The difference is thus not especially great. All in all, the particular fragments of Danish legal texts chosen for the corpus include a disproportionately high number of examples of kin terms, which leads to a more frequent use of pronouns instead of the genitive construction. Without a prior in-depth analysis of the texts and its referents, this seems unavoidable.

5.4.4 Summary

In conclusion, while there can be no claim that there are clear possessive splits in historical Danish and Swedish, where one construction is dedicated to a certain notion of possession, it is evident that there are some tendencies for notions of possession to favour particular constructions. These tendencies stem predominantly from the semantic make-up of a given possessive notion, namely the particular relation between possessor and possessum referents that possessives express and the level of predictability that comes with it. In accordance with the economic motivation in language, if the possessive relation is easily predictable, which is the case with relational referents (like kin terms and body parts) and referents that are prototypically involved in possessive relations (like typical material possessions), then it requires less coding material. Thus, for notions such as OWNERSHIP, KINSHIP, SOCIAL ROLE and PART–WHOLE relations, possessive pronouns are favoured. For peripheral notions, where a particular referent's occurrence in a possessive construction is less predictable, more coding material is required; hence the genitive construction is favoured with notions of ABSTRACT, ATTRIBUTIVE, LOCATIVE and TEMPORAL possession.

In the last section of this chapter I take a more global look at all of the possessive constructions found in Danish and Swedish texts written between 1250 and 1700. Using a statistical model based on Classification and Regression Trees, I explore the factors significant for the selection of a given construction in the material.

5.5 Factors favouring possessive constructions: Classification and Regression Tree Analysis

To determine which variables have the greatest impact on the presence of a given possessive construction in the dataset, a Classification and Regression Tree Analysis (CRT) is performed. The classification analysis tests independent variables one at a time and chooses the factor that has the greatest association with the dependent variable, which in this case is the presence of a given possessive construction. The model then automatically splits the data into subsets visualized in the form of nodes in a tree diagram form. The classification is performed automatically by the statistical program (IBM SPSS), which performs the CRT with no input or choices made by the user. Classification tree models are used to predict membership of cases in the classes of a categorical dependent variable. If the independent variables included in the classification analysis have sufficiently significant impact on the dependent variable's response, the model's predictive accuracy will improve.

5.5.1 Regular vs. reflexive possessive pronouns

Firstly, only three out of four possessive constructions are explored here, as there are too few instances of the possessive prepositional construction in the dataset to render any significant results. Let us first analyse the factors influencing the presence of regular possessive pronouns against reflexive possessive pronouns. In section 5.2.2, except for differences in placing pronouns (in pre- or postposition with respect to the head noun), I have not identified any factors that could differentiate the use of regular versus reflexive pronouns. Figure 27 illustrates the classification tree for possessive pronouns in the Danish corpus. The independent variables included here are: animacy, number, countability, concreteness, topicality, and length of the possessum phrase, as well as genre, period, and semantic notions of possession. Of these factors only one — length of the possessum phrase — is not statistically significant; the remaining factors are all significant.

In the Danish material there are over twice as many regular pronouns as reflexive pronouns. If the algorithm had to guess the response (the occurrence of either regular or reflexive pronouns), it would always choose regular pronouns, based on their dominant frequency. In that case the model would be correct in 68.4% of cases, which is the predictive accuracy of the baseline model. In the first split in Figure 27 the genre of the text is selected as the most significant factor.[25] Regular possessive pronouns are more frequent than reflexive pronouns in all three genres; however, reflexive pronouns are more frequent in legal texts than in the remaining two genres. Further, within legal texts (Node 1) reflexive pronouns are significantly associated with Period I (1250–1350), while regular pronouns are associated with Period IV (1550–1700). It follows that a characteristic trait of Danish legal texts from 1250–1350 is a particularly frequent use of reflexive possessive pronouns. Within religious and profane texts (Node 2), regular pronouns are more frequent than reflexives in each period, although they are particularly associated with Periods I and IV.

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[25] The tree has been pruned with a maximum difference in risk of 0.005 to avoid overfitting of the data. The accuracy of the model of the pruned tree is exactly the same as that of the full tree, meaning that the tree model presented in Figure 27 generalizes the data well.
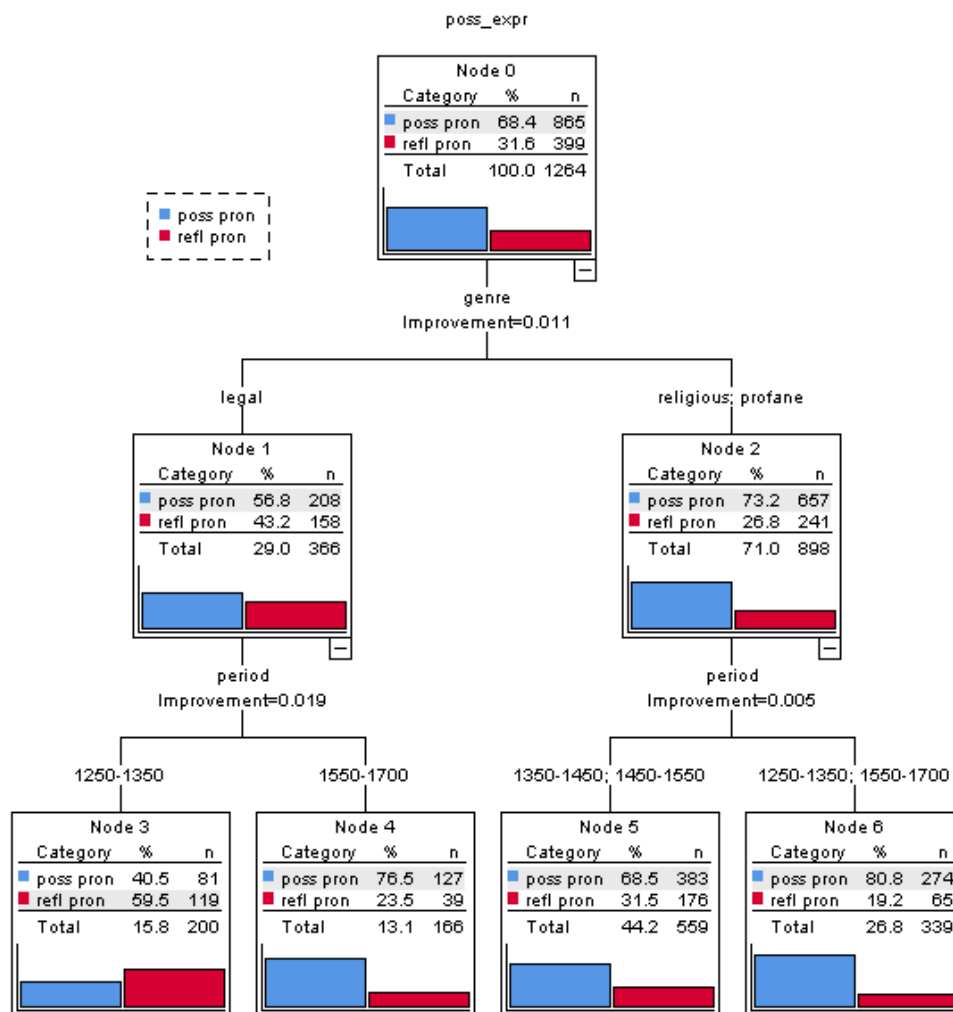
Figure 27. Classification tree for the Danish pronouns

The accuracy of the model with independent factors included is 71.4%; the improvement over the baseline model is thus only marginal. As regards the impact of each of the relevant factors in this model, Table 35 illustrates the relative importance of the variables. The variable which provides the highest improvement of the model is scored at 100.0% — in this case it is the period of the text — and all of the other variables are scored relative to the best performing factor. The genre of the text is the second most influential factor, with a relative score of 33.2%. The remaining factors score much lower than the period and genre of the text, which means that their contribution to the model's improvement is not very substantial.

Table 35. Relative importance of factors influencing occurrence of pronouns in Danish

Score	Variable	Importance
1	PERIOD	100.0%
2	GENRE	33.2%
3	NOTIONS OF POSSESSION	12.0%
4	NUMBER	6.6%
5	TOPICALITY	3.2%
6	ANIMACY	1.9%
7	COUNTABILITY	0.4%
8	CONCRETENESS	0.2%

Figure 28 illustrates the classification tree for possessive pronouns in the Swedish corpus. The independent variables tested here are the same as for the Danish tree, namely animacy, number, countability, concreteness, topicality, and length of the possessum phrase, as well as genre, period, and semantic notions of possession. The factors selected as statistically significant include topicality, period, notions of possession, concreteness, countability, and animacy. Interestingly, the factor of genre, which has the second greatest impact on the Danish classification tree in Figure 28, is not deemed statistically significant in the Swedish model. The predictive accuracy of the baseline model is 60.0%, based on the relative frequency of regular possessive pronouns.

In the first split, topicality is chosen as the most impactful variable. Swedish reflexive pronouns are associated with new possessum referents slightly more strongly than with given possessum referents. In both categories, however, regular pronouns dominate. In the second and last split, within given possessum referents, reflexive pronouns are more strongly associated with the earlier periods, namely 1250–1550 (the Old Swedish periods) than with the last period of 1550–1700. All in all, the differences illustrated in the tree diagram are not particularly great, as regular possessive pronouns are more frequent than reflexives at each split. This results, unfortunately, in a model that provides no improvement over the baseline model. The predictive accuracy remains at 60.0%, which means that the factors, even though some are statistically significant, do not result in different responses of the dependent variable. The relative importance of each significant variable is presented in

Table 36. Even though the model does not provide improvement in its predictive capacity, the statistically significant factors can be ranked with regard to their importance to the model. Topicality is the most important factor in the Swedish dataset as regards the use of pronouns, closely followed by period. Four other factors are also significant, although their contribution is not very substantial. Since the last four significant factors do not even appear in the tree diagram, their contribution must be confined to a very specific and limited context.
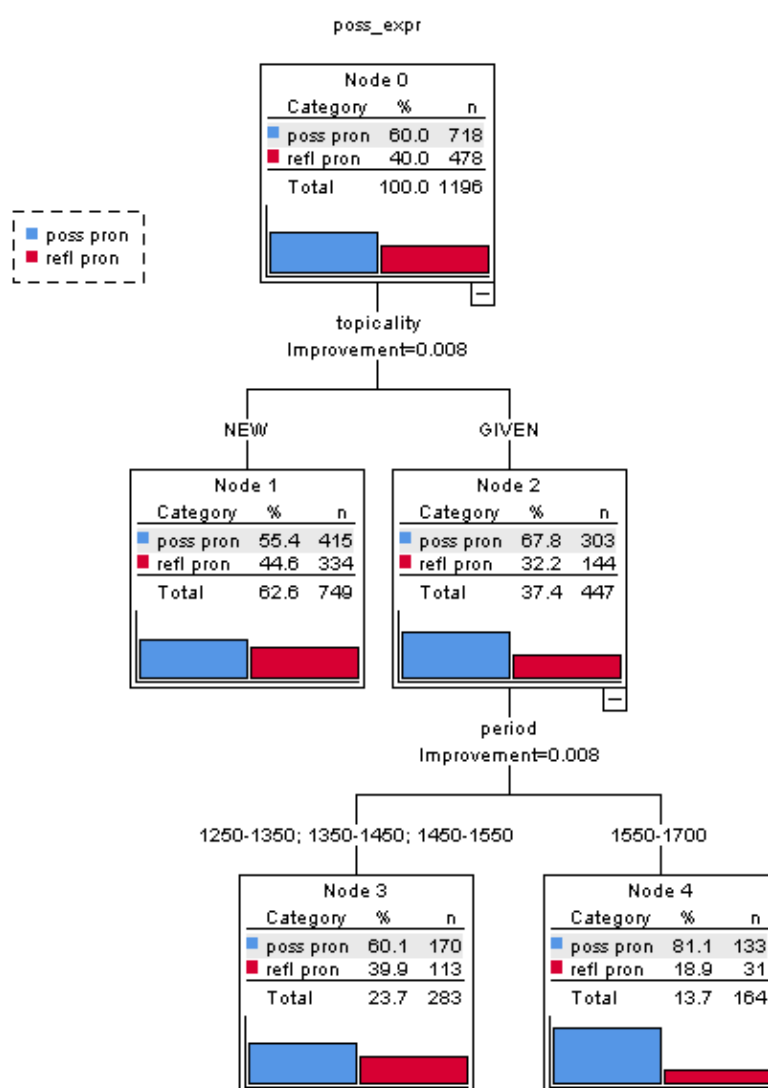
Figure 28. Classification tree for the Swedish pronouns

Table 36. Relative importance of factors influencing occurrence of pronouns in Swedish

Score	Variable	Importance
1	TOPICALITY	100.0%
2	PERIOD	92.9%
3	NOTIONS OF POSSESSION	14.6%
4	CONCRETENESS	11.1%
5	COUNTABILITY	6.1%
6	ANIMACY	2.3%

In conclusion, since regular and reflexive pronouns in Danish and Swedish do not generally differ from each other with regard to what types of referents they may modify, semantic factors such as animacy, concreteness and countability were not expected to have a bearing on the selection of a pronoun. The Classification Tree Analysis confirmed that, illustrating that it is either pragmatic factors (topicality) or external contextual factors (period and genre of the historical text) that may influence the selection of a possessive pronoun. In the case of topicality, further studies are needed to confirm its importance in the use of regular versus reflexive pronouns in Swedish.

5.5.2 Genitive vs. pronouns

Using the Classification Tree Analysis we may also explore the use of genitives in comparison with pronouns. However, since the focus of the present diachronic study lies predominantly on the genitive construction, the factors included in the study were chosen specifically with possessors in the genitive in mind. Comparing the possessum phrases in genitive constructions with those in pronominal constructions did not bring any statistically significant results. Thus, in this section I compare the aforementioned constructions with regard to only three factors that are not connected to the type of referents, namely semantic notions of possession, period, and genre.

Figure 29 illustrates the classification tree for Danish possessive constructions.[26] All three variables are selected as statistically significant. The first split is determined by semantic notions of possession; LOCATIVE and TEMPORAL notions are nearly exclusively expressed through a genitive construction, so the association here is apparent. The remaining notions of possession are then split into two groups (Nodes 3 and 4). For ABSTRACT and ATTRIBUTIVE possession, as we have already seen in section 5.4.1, the genitive is the preferred construction, while for all of the other notions regular possessive pronouns are preferred. Within ABSTRACT and ATTRIBUTIVE possession, interestingly, possessive pronouns dominate in the texts from Period II (1350–1450), while genitives dominate in the remaining periods (Nodes 5 and 6). Within the remaining notions of possession the period of the text also determines the last split (Nodes 7 and 8). Here, both reflexive and regular pronouns are nearly equally frequent in Period I (1250–1350), while regular pronouns dominate in the remaining periods. The predictive accuracy of the baseline model is 44.1%, while the accuracy of the model with the three variables included is 52.9%. The relative importance of each variable is given in Table 37.

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[26] The tree has been pruned with a maximum difference in risk of 0.5 to avoid overfitting of the data. The accuracy of the model of the pruned tree is lower by only 0.6% than that of the full tree, meaning that the tree model presented in Figure 29 generalizes the data well.
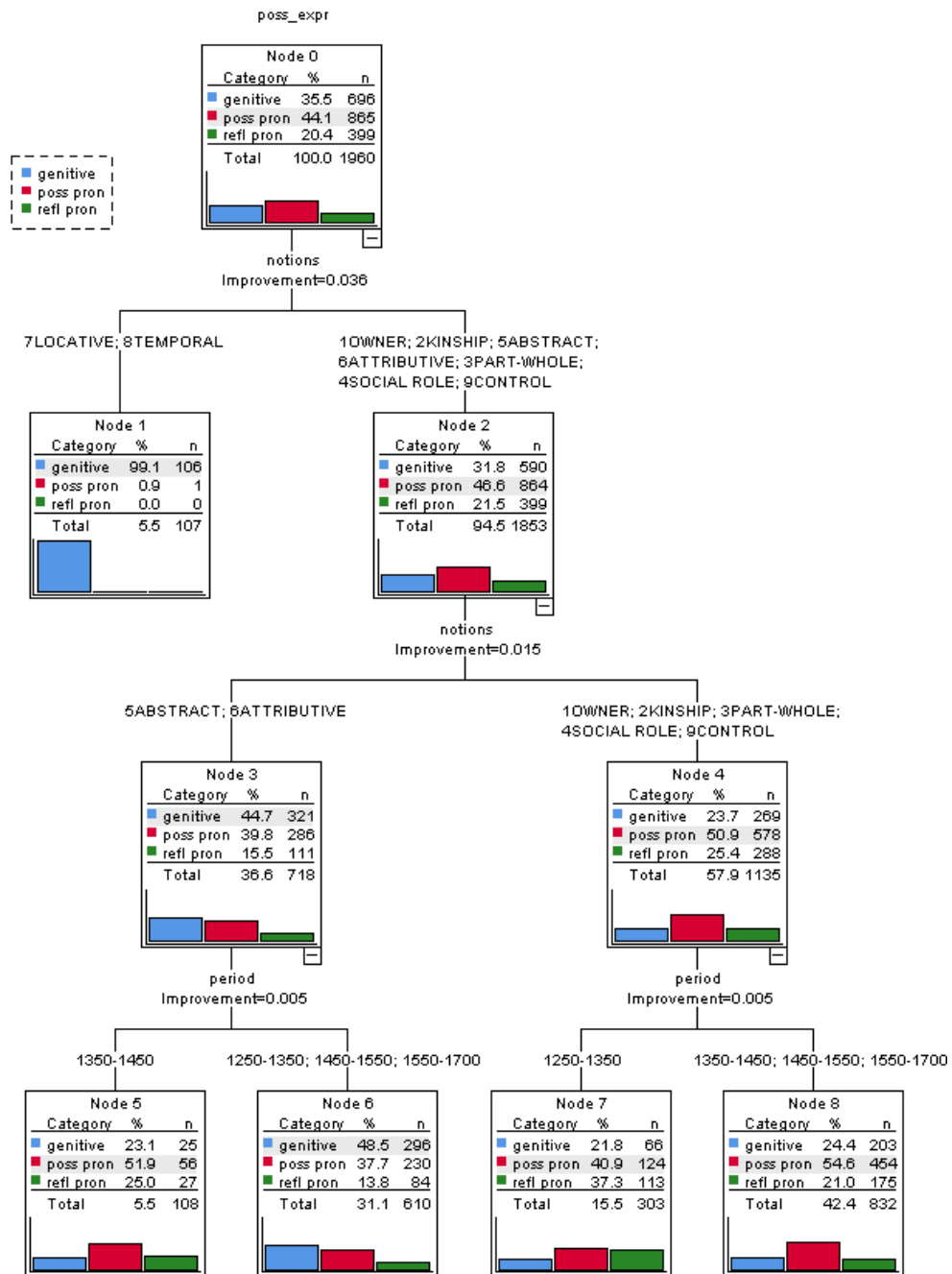
Figure 29. Classification tree for Danish possessive constructions

Table 37. Relative importance of factors influencing the selection of possessive constructions in Danish

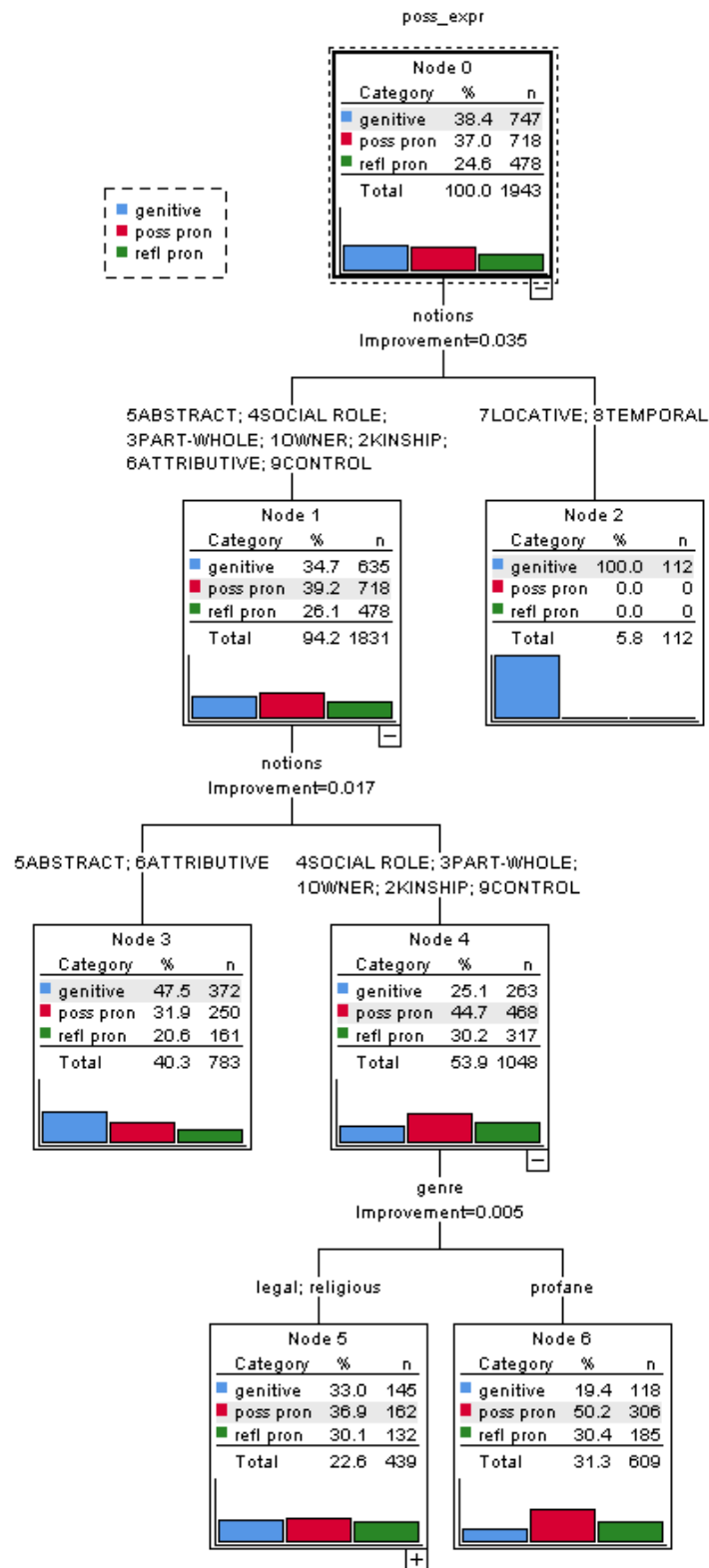| Score	Variable	Importance
1	NOTIONS OF POSSESSION	100.0%
2	PERIOD	36.3%
3	GENRE	10.1%

Figure 30. Classification tree for Swedish possessive constructions

In Figure 30 the classification tree for Swedish possessive constructions is presented.[27] The first two splits are the same as for the Danish classification tree, namely both are determined by notions of possession. Firstly, LOCATIVE and TEMPORAL possession is associated exclusively with genitives (Node 2), and secondly, ABSTRACT and ATTRIBUTIVE possession is strongly associated with the genitive construction as well (Node 3). The final split is determined by the genre of the texts. Among the remaining notions of possession that are most strongly associated with regular pronouns (Node 4), regular pronouns dominate in profane prose (Node 6), while for legal and religious prose the proportions are fairly equal (Node 5). All this confirms the results presented in section 5.4.

Table 38. Relative importance of factors influencing the selection of possessive constructions in Swedish

Score	Variable	Importance
1	NOTIONS OF POSSESSION	100.0%
2	PERIOD	10.2%
3	GENRE	8.8%

The predictive accuracy of the new model is 50.4%, which is an improvement over the predictive capacity of the baseline model (38.4%). The relative importance of the variables is given in Table 38. We can further observe that the factors of period and genre have a smaller impact on the Swedish model than on the Danish model.

5.6 Summary

The data analysed in this chapter provide us with an account of the use of attributive possessive constructions in Danish and Swedish texts written between 1250 and 1700. As regards the genitive construction, the prenominal position of genitival possessors is largely established already in the first period studied (1250–1350) both in Danish and Swedish. The data also suggest that the ending -*s* found in the present-day s-genitive spread and grammaticalized earlier in Danish than in Swedish, where other case endings were still in use as late as in Period III (1450–1550). As regards pronominal constructions, regular pronouns are mostly prenominal already in Period I, while reflexive pronouns are predominantly postnominal. Both Danish and Swedish reflexive pronouns are largely used as pronominal adjectives in Period I, especially when it comes to marking relational referents such as kin terms, which seem to be the last type of referents to obtain a fixed prenominal order. In the first period reflexives are thus in the process of being reclassified as determiners, as already in Period II they are nearly exclusively prenominal and function as determiners. In the case of possessive prepositional constructions, there are relatively few examples of these in the corpus. They start to emerge in Period I in Swedish and in Period II in Danish, but there are no significant rises in their frequency across the periods studied here. The few examples of

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[27] The tree has been pruned with a maximum difference in risk of 0.5 to avoid overfitting of the data. The accuracy of the model of the pruned tree is lower by only 0.4% than that of the full tree, meaning that the tree model presented in Figure 30 generalizes the data well.

possessive PPs in the corpus are largely confined to LOCATIVE possession or PART–WHOLE relationships, the latter, however, occur almost exclusively in Swedish.

Further, the analysis confirms the hypothesis that the use of the genitive construction in Old Danish and Swedish is not arbitrary, but depends on certain semantic and pragmatic factors (see Hypothesis A, sections 1.2 and 4.1.4). The genitive in Danish and Swedish historical texts clearly favours singular and human possessor referents that have been introduced into the text earlier (i.e. given referents). The data also indicate that semantic notions of possession have some impact on the selection of a possessive construction, in accordance with the economic motivation in language. If the relationship between the PR and PM referents is easily predictable and there is less conceptual distance between the referents, less coding is required to express that relation. In such cases, namely in instances of OWNERSHIP, KINSHIP, PART–WHOLE and SOCIAL ROLE relationships, possessive pronouns are selected rather than genitives. If the relationship between the referents is less predictable, which is the case with peripheral notions of possession (ABSTRACT, ATTRIBUTIVE, LOCATIVE and TEMPORAL possession), the genitive construction is selected.

In addition, apart from some external factors such as the genre of corpus texts, there do not seem to be any major differences between regular and reflexive pronouns in terms of the factors that influence their selection. There are, however, interesting results regarding the topicality of possessum referents. In both Danish and Swedish (although in Danish it seems to be confined only to legal texts) there is a statistically significant correlation between reflexive pronouns and newly introduced PM referents. Reflexive pronouns are predominantly (in ca. 70.0% of cases) used to introduce new discourse referents (namely the PM referents). In comparison, ca. 57.0% of regular pronouns are used to introduce new PM referents. Further research is necessary on this point to determine whether the topicality of PM referents has a bearing on the selection of a possessive pronoun. When introducing new discourse referents in such a way, NPs often involve an indirect anaphoric reference: the introduced referent is newly mentioned, but anchored by a previously mentioned PR referent (cf. H. H. Clark & Haviland 1977; Fraurud 1986; Schwarz-Friesel 2007; Irmer 2011). In present-day Danish and Swedish such referents are often introduced by the definite article. Skrzypek, Piotrowska, and Jaworski (2021) show that the use of pronouns in this function in Old Danish and Swedish is an intermediate stage in the marking of indirect anaphoric referents before the definite article grammaticalized in this context.

Lastly, the data do not suggest any significant structural or semantic differences in the use of possessives between Old Danish and Old Swedish. The only ones found in the corpora are the differences in frequencies of particular constructions, but this is attributed to the text types and the fact that in certain texts different notions of possession are more frequent, as is the case with the KINSHIP relationship, which is particularly common in Danish legal texts.

In the next chapter, I turn to the present-day Danish and Swedish data and explore the variation between the s-genitive and the prepositional construction. I will illustrate how the genitive construction changed in comparison with the genitive in Old Danish and Swedish as described here. I will also explore what factors have the largest impact on the selection of the s-genitive against the prepositional construction.

CHAPTER 6

Possessive variation in present-day Danish and Swedish

6.1 Introduction

In this chapter, I present the results obtained from the contemporary corpus of Danish and Swedish texts. In this part of the dissertation I focus predominantly on two interchangeable constructions, namely the s-genitive (*Annas hus* 'Anna's house') and the prepositional construction (*taket på huset* 'the roof of the house'). Pronominal constructions (*hans hus*, *sitt hus* 'his house') are not explored in detail, although the differences in relative frequencies of pronoun use in Danish and Swedish are reported, together with the general results in section 6.2. In 6.3 I explore in detail the variables that may have an influence on the choice of either the s-genitive or the prepositional construction. The association between the factors and the given possessive construction is analysed. The variables include animacy, definiteness, topicality, length of the phrase, semantic notions of possession, register, and others (see section 4.3.2 and Table 13 for the full list of factors included in the study). In section 6.4 the variables are brought together in a statistical model using binary logistic regression and Classification and Regression Tree Analysis (see section 4.4 for detailed descriptions of both tools). These statistical tools are used to determine which factors have the largest influence on the choice of the s-genitive over the prepositional construction. Section 6.5 concludes the chapter.

6.2 General results

The relative frequencies of all adnominal possessive expressions, including pronouns, found in the contemporary corpus of Danish and Swedish are presented in Table 39. Note that the overall number of possessive constructions annotated in the contemporary corpus (4,577 NPs) is similar to the overall number of possessive NPs annotated for the diachronic corpus (4,000 NPs; see section 4.2.2 and Chapter 5).

Table 39. The frequency of Danish and Swedish possessive expressions in the contemporary corpus

Language	s-genitive	prepositional phrases	possessive pronoun	reflexive pronoun	Total
Danish	888	261	957	374	2,480
	35.8%	10.5%	38.6%	15.1%	100.0%
Swedish	684	572	509	332	2,097
	32.6%	27.3%	24.3%	15.8%	100.0%
Total	1,572	833	1,466	706	4,577
	34.3%	18.2%	32.0%	15.4%	100.0%

Overall, the s-genitive is the most frequently used construction, although it is closely followed by regular possessive pronouns. In fact, regular pronouns are used more often than the s-genitive in the Danish texts, and they are much more frequently used in Danish than in Swedish in the corpus. Reflexive possessive pronouns are used with nearly the same frequency in both languages. One of the most prominent differences between the Danish and Swedish use of possessives in the contemporary corpus concerns the use of possessive prepositional phrases. The prepositional construction, which is of particular interest in this chapter, is the second most frequently used expression in Swedish texts, but the least frequent expression in Danish texts. As regards the use of pronouns, the general conclusion is that the material gathered, despite including the same registers of texts, reveals significant differences in the frequencies of the use of possessive pronouns in Danish and Swedish, a fact which merits examination in a separate study.
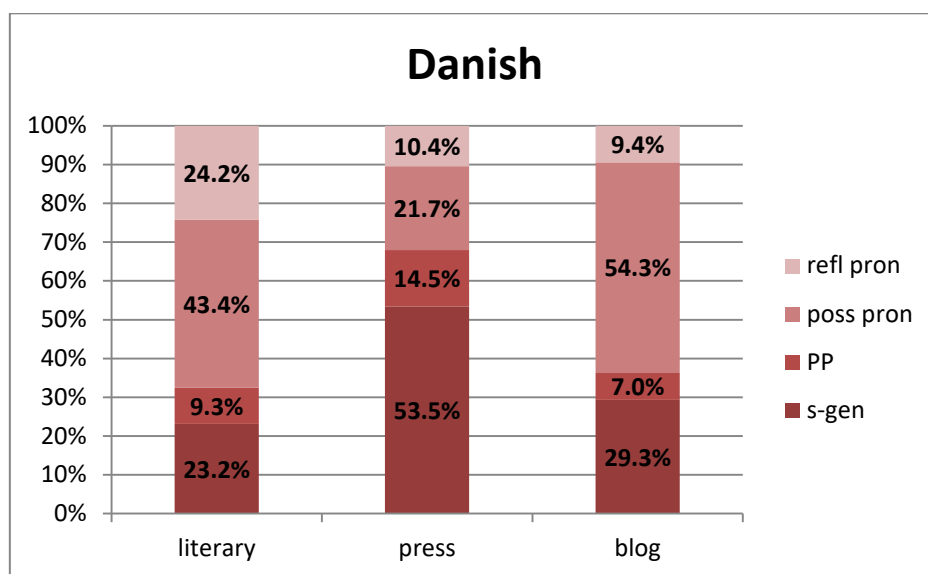

Figure 31. Relative frequencies of the possessive constructions in each register in Danish
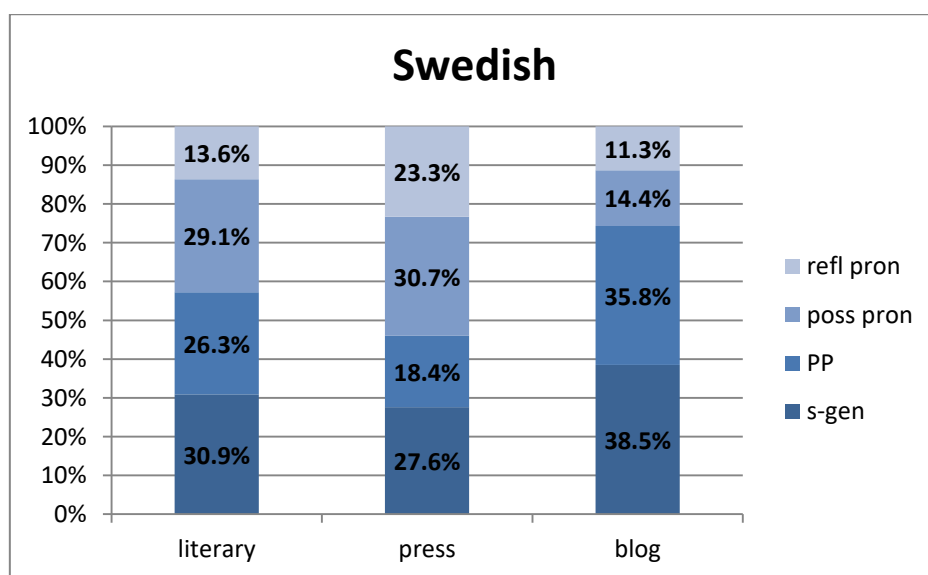

Figure 32. Relative frequencies of the possessive constructions in each register in Swedish

Further, it is worthwhile to examine the general frequencies of possessive expressions in different registers in the contemporary corpus. Figures 31 and 32 show the relative frequencies of the four constructions in each register, namely literary, press and blog texts. As the figures illustrate, there are some clear differences between Danish and Swedish text registers in the corpus. As regards Danish, possessive pronouns account for as many as 67.6% of all possessives in the literary texts and 63.7% of all possessives in the blog texts. The s-genitive and PPs are used relatively infrequently, thus the majority of the Danish data used in this chapter come from the press texts. In the latter register, conversely to literary and blog texts, the s-genitive and PPs constitute the majority of the possessive expressions (68.0%). As regards Swedish, pronouns constitute a majority in one register only — the press texts (54.0%) — which is the reverse of the situation found in the Danish texts. In the remaining two registers the s-genitive and prepositional phrases constitute a majority. As already mentioned, the prepositional construction is used much more frequently in Swedish. Interestingly, it is used most commonly in the blog texts and least commonly in the press texts. In Danish, on the other hand, PPs are used most frequently in the newspaper texts and least frequently in blogs. Further, regular and reflexive pronouns are used least frequently in blog texts in the Swedish corpus, which is unexpected considering the characteristics of the register, namely that the texts are usually written in the first person and describe personal experiences. We would thus expect a much more frequent use of first and third person pronouns rather than prepositional phrases, as is the case in the Danish blogs. The blogs chosen for both the Danish and Swedish corpora were a combination of so-called personal blogs or diaries (containing descriptions of the author's days, travels, children, etc.) and blogs authored by journalists who comment on recent events in an informal fashion. Neither type of blog texts is dominant in either language; thus, I assume that the differences in the use of possessives described here result from the particular topics discussed in the blog posts and the author's style of writing rather than from the register itself.

To sum up, the use of possessive expressions as a function of register differs between Danish and Swedish to a considerable degree. In Danish, contemporary novels and blogs predominantly make use of pronominal possessive constructions, while newspaper texts use the s-genitive much more often than pronouns. This might stem from the fact that in the literary and blog texts the possessor referents are often recurring and retrievable from the larger context, while in press texts the referents are often newly introduced and thus need to be spelled out explicitly. This, however, does not find strong support in the Swedish data, where the frequencies of pronouns vs. the s-genitive are reversed when compared with the Danish data — possessive pronouns are most frequent in press texts, but less so in literary and blog texts. More precisely, pronominal possessives are used somewhat more often than the s-genitive or PPs in the Swedish press texts, while in the remaining two registers it is the s-genitive and PPs that are the most frequent. The factor of register and its importance in the selection of the s-genitive vs. the prepositional construction will be discussed in section 6.3.6. In the next section, I turn to a brief comparison of the diachronic general data discussed in section 5.2 with the data from the contemporary corpus.

6.2.1 Comparison with the diachronic data – general frequencies

In Table 40 I present a comparison of the general frequencies of adnominal possessive constructions found in the diachronic corpus (data from Tables 14 and 15 in section 5.2) and in the contemporary corpus.

Table 40. Comparison of the diachronic and contemporary data – frequencies of possessive constructions

Language	Period	(s-)genitive	PP	poss pron	refl pron	Total
Danish	1250–1700	696	40	865	399	2,000
		34.8%	2.0%	43.2%	20.0%	100.0%
	present-day	888	261	957	374	2,480
		35.8%	10.5%	38.6%	15.1%	100.0%
Swedish	1250–1700	747	57	718	478	2,000
		37.4%	2.8%	35.9%	23.9%	100.0%
	present-day	684	572	509	332	2,097
		32.6%	27.3%	24.3%	15.8%	100.0%

The distribution of the four possessive constructions in Danish remains relatively unchanged. The frequency of s-genitive use is nearly identical, while the use of both types of pronouns moderately decreases. The use of possessive PPs is much more frequent than in the historical texts; however, it does not reach a level of frequency similar to that found in the Swedish texts. Greater changes may be observed for Swedish, where the use of the s-genitive decreases somewhat, but the use of PPs rises exponentially from ca. 3% to 27% of all possessives. The use of pronouns in the Swedish contemporary texts also decreases, and the decrease is more pronounced than in the Danish texts.

In conclusion, the greatest change in the use of adnominal possessives that we observe between the diachronic and contemporary corpora is a fairly extreme rise in the use of possessive prepositional phrases. We can observe a common tendency in both languages as regards the use of PPs: a previously marginal construction becomes one of the central ones and competes with the s-genitive, albeit to different degrees in Danish and Swedish. Further research is needed to establish whether possessive PPs were developing and increasing in frequency in the years not explored in this study (namely from the 18th to the 20th century) or whether they are an entirely modern phenomenon that has arisen due to influence from the well-established and grammaticalized English of-genitive.

6.2.2 Comparison with the diachronic data – the semantic notions of possession

As mentioned, the regular and reflexive possessive pronouns are not explored further in the main part of this chapter, which focuses on the variation between the s-genitive and the prepositional construction. For that reason, to conclude the topic of pronouns, in this section I will briefly discuss the semantic possessive notions expressed in possessive constructions, and compare these with the data from the diachronic corpus.

In the diachronic corpus, the notions of possession regarded as prototypical, namely OWNERSHIP, KINSHIP, PART–WHOLE, and SOCIAL ROLE relationships, were predominantly expressed with regular possessive pronouns in both languages (see Tables 33 and 34 in section 5.4.1). The remaining semantic notions (i.e. ABSTRACT, ATTRIBUTIVE, LOCATIVE and

TEMPORAL) were predominantly expressed with genitive constructions (with the exception of the CONTROL relation, which was expressed largely with regular pronouns). There were no significant differences between Danish and Swedish in this respect. I argued that the frequent use of pronouns with prototypical notions of possession can be explained in terms of iconicity. These notions demonstrate a distinctively close bond between the PR and PM referents, as the head NPs often include relational nouns, and thus they often presuppose the use of possessives. Further, relational PM referents, especially in KINSHIP, SOCIAL ROLE and PART–WHOLE relations, are expected to occur in possessive expressions, and thus the use of possessives is easily predictable. The more predictable the information is, the less coding it requires (Givón 1995b; see also section 4.1.2) and thus the pronominal construction is preferred to the genitive construction. With referents that are less predictable as PRs or PMs, more coding is required. Inanimate PR referents in LOCATIVE or TEMPORAL expressions and abstract PM referents in ABSTRACT or ATTRIBUTIVE possession are less commonly associated with the notion of possession; thus, they occur more often in full genitival NPs.

Table 41. Distribution of notions of possession among possessive constructions in the contemporary Danish corpus

Possessive notions	s-gen	PP	poss pron	refl pron	Total
KINSHIP	21	2	**105**	33	161
	13.0%	1.2%	**65.2%**	20.5%	100.0%
PART–WHOLE	82	72	**110**	30	294
	27.9%	24.5%	**37.4%**	10.2%	100.0%
SOCIAL ROLE	35	9	**87**	23	154
	22.7%	5.8%	**56.5%**	14.9%	100.0%
AUTHOR	**64**	6	30	22	122
	52.5%	4.9%	24.6%	18.0%	100.0%
ABSTRACT	**244**	60	**259**	97	660
	37.0%	9.1%	**39.2%**	14.7%	100.0%
ATTRIBUTIVE	**198**	59	142	67	466
	42.5%	12.7%	30.5%	14.4%	100.0%
LOCATIVE	**122**	48	0	0	170
	71.8%	28.2%	0.0%	0.0%	100.0%
TEMPORAL	**101**	4	0	0	105
	96.2%	3.8%	0.0%	0.0%	100.0%
OWNERSHIP	10	1	142	64	217
	4.6%	0.5%	65.4%	29.5%	100.0%
CONTROL	11	0	82	38	131
	8.4%	0.0%	62.6%	29.0%	100.0%
Total	888	261	957	374	2,480
	35.8%	10.5%	38.6%	15.1%	100.0%

χ^2 =793.585, *df* = 27, *p* < 0.001

Table 41 illustrates the distribution of notions of possession among the four adnominal possessive constructions in the corpus of contemporary Danish. Note that the notions of OWNERSHIP and CONTROL expressed with the s-genitive and prepositional constructions are largely excluded from the corpus, as they often require the s-genitive and thus rule out the use of PPs (see section 4.3.2). For this reason, the obvious dominance of pronouns in expressing

these notions is of little importance, as they cannot be compared with the other two constructions. Similarly, LOCATIVE and TEMPORAL notions of possession preclude the use of pronouns, as these types of possession require an inanimate PR referent.

The distribution of the possessive constructions among the notions of possession in contemporary Danish is very similar to that found in Old Danish (see Table 33 in section 5.4.1). The majority of instances of KINSHIP and SOCIAL ROLE relations are expressed with regular pronouns; similarly the PART–WHOLE relationship occurs most frequently with regular pronouns. As regards ABSTRACT possession, regular pronouns and the s-genitive are nearly equally frequent. The remaining, more abstract types of possession (e.g. ATTRIBUTIVE and AUTHOR) are predominantly expressed with the s-genitive. The principle of iconicity is thus just as well reflected in contemporary Danish as in Old Danish. The types of possessive expressions in which the PM referent is relational, and thus the possessive NP is presupposed and inscribed in the semantics of the PM referent, require less coding material, as in examples (273) and (274).

(273) ***Hendes***   ***sønn-er***   *havde*   *forsøgt at*   *overtale*   *hende*   *til*
       3SG.POSS.F   son-PL   had   tried   to   persuade   3SG.F   to

       at   *søge*   *hjælp, men*   *Birgitte*   *var*   *stædig*
       to   seek   help   but   Birgitte   was   stubborn
       'Her sons had tried to persuade her to seek help, but Birgitte was stubborn.'
       (DA, Justesen 2018)

(274) *at*   *man*   *derfor*   *lægger alt*   *for*   *meget*   *moralsk*   *skyld*
       that   one   therefore   places all   too   much   moral   blame

       på   ***hans***   ***ung-e***   ***skuldre***
       on   3SG.POSS.M   young-WK   shoulder.PL
       'That one therefore places too much moral blame on his young shoulders.'
       (DA, Bludnikow 2018)

ABSTRACT possession, as already mentioned, occurs nearly equally frequently with the s-genitive (example (275)) and regular pronouns (examples (276) and (277)) in the Danish contemporary texts. Compared with the diachronic corpus we observe a moderate rise in the use of pronouns with this type of possession and a decrease in the use of the s-genitive. Interestingly, the overall number of instances of ABSTRACT possession has not changed between the periods studied (it constituted 25.3% of all of the possessive examples in Old Danish and 26.6% in contemporary Danish). I would like to argue that some instances of ABSTRACT possession, especially those in which the PM referent is a deverbal noun (as in example (277)), can be seen as partly relational. Deverbal nouns presuppose an action, and an action presupposes an agent; the PR referent in such constructions is then an agent of the action described in the PM phrase. Seen in this way, it is easily predictable and expected that NPs like 'arrival', 'singing' or 'disappearance' will occur as PMs in possessive constructions, since they require an agent. The choice between the s-genitive and pronouns in these cases

will largely rely on the context: if the agents were introduced in previous discourse, pronouns will suffice.

(275) *Med elegance blandedes* **befolkning-en-s** **ønske-r**
with elegance mixed people-DEF-S wish-PL

med parti-et-s linje
with party-DEF-S line
'With elegance, the wishes of the people mixed with the line of the party.'
(DA, Rasmussen 2013)

(276) *Det er spot on til* **vores** **behov** *og sådan*
3SG.N is spot on to 1PL.POSS need.PL and such

noget vi selv ville købe
something 1PL REFL wanted buy
'It is spot on for our needs and something we would buy ourselves.' (DA, Olsen 2018)

(277) *det var faktisk præcis på årsdag-en for*
3SG.N was actually exactly on anniversary-DEF for

hendes **forsvinden**
3SG.POSS.F disappearance
'It was actually exactly on the anniversary of her disappearance.'
(DA, Ostergaard 2013)

Table 42 illustrates the distribution of notions of possession among the four adnominal possessive constructions in the corpus of contemporary Swedish. The distribution differs in some ways from that of Danish, as well as from the distribution found in Old Swedish (see Table 34 in section 5.4.1).

Table 42. Distribution of notions of possession among possessive constructions in the contemporary Swedish corpus

Possessive notions	s-gen	PP	poss pron	refl pron	Total
KINSHIP	3	2	**32**	20	57
	5.3%	3.5%	**56.1%**	35.1%	100.0%
PART–WHOLE	71	**118**	60	37	286
	24.8%	**41.3%**	21.0%	12.9%	100.0%
SOCIAL ROLE	32	20	**54**	37	143
	22.4%	14.0%	**37.8%**	25.9%	100.0%
AUTHOR	58	21	**66**	14	159
	36.5%	13.2%	**41.5%**	8.8%	100.0%
ABSTRACT	**177**	126	**164**	100	567
	31.2%	22.2%	**28.9%**	17.6%	100.0%
ATTRIBUTIVE	**150**	114	64	67	395
	38.0%	28.9%	16.2%	17.0%	100.0%

Possessive notions	s-gen	PP	poss pron	refl pron	Total
LOCATIVE	123	**162**	1	0	286
	43.0%	**56.6%**	0.3%	0.0%	100.0%
TEMPORAL	**66**	7	0	0	73
	90.4%	9.6%	0.0%	0.0%	100.0%
OWNERSHIP	3	2	29	34	68
	4.4%	2.9%	42.6%	50.0%	100.0%
CONTROL	1	0	39	23	63
	1.6%	0.0%	61.9%	36.5%	100.0%
Total	684	572	509	332	2,097
	32.6%	27.3%	24.3%	15.8%	100.0%

χ^2 = 693.193, *df* = 27, *p* < 0.001

Most notably, the prepositional construction is the preferred option for two types of notions, namely the PART–WHOLE relationship, which was mainly expressed with regular pronouns in Old Swedish, and LOCATIVE possession, which was mainly expressed with the genitive construction in Old Swedish. Examples of these constructions are given in (278) and (279).

(278) *I   Rockport,   Texas, har   **tak-et**   **till**   **ett**   **äldreboende***
    in   Rockport   Texas has   roof-DEF   to   INDF   nursing.home

rasat   samman
collapsed   together
'In Rockport, Texas, the roof of a nursing home has collapsed.' (SV, Thorneus 2017)

(279) *I   **medie-r-na**   i   **Finland**   kom   ord-et   först   in*
    in   media-PL-DEF.PL   in   Finland   came   word-DEF   first   in

i   text-er som   handlade   om   transperson-er
in   text-PL that   dealt   about   transgender.person-PL
'In the media in Finland, the word first appeared in texts about transgender people.' (SV, Holmberg 2017b)

Similarly to Danish, the most prototypically relational PM referents (those in KINSHIP and SOCIAL ROLE relations) continue to occur most frequently with regular pronouns (see examples (280) and (281)). ABSTRACT possession is most frequently expressed with the s-genitive, but possessive pronouns are also very frequent.

(280) *i   hennes   knä   ligger en   halvfärdig   vante som*
    in   3SG.POSS.F   lap   lies   INDF   half.finished   mitten that

hennes   styvson   snart ska   få
3SG.POSS.F   stepson   soon   will   get
'In her lap is a half-finished mitten that her stepson will soon receive.' (SV, Axelsson 2014)

(281) | *Hon* | *såg* | *flicka-n* | *och* | **hennes** | **kamrat-er** | *inte* | *mer* |
|---|---|---|---|---|---|---|---|
| 3SG.F | saw | girl-DEF | and | 3SG.POSS.F | friend-PL | not | more |

än	*tio*	*meter*	*bakom*	*sig*
than	ten	metre.PL	behind	REFL

'She saw the girl and her friends not more than ten metres behind her.' (SV, Backman 2013)

The distribution of constructions among the possessive notions was quite uniform in Old Swedish. Just as in Old Danish, regular pronouns were preferred for prototypical notions, such as OWNERSHIP, KINSHIP, SOCIAL ROLE and PART–WHOLE, while the genitive construction was preferred for more peripheral notions. In the contemporary texts the distribution is not as uniform; the prepositional construction has taken over some of the domains of the genitival or pronominal constructions, which is not the case in Danish.

In conclusion, regular pronouns continue to be used in the contemporary texts predominantly with expressions that include relational PM referents. It is important to note, however, that the use of pronouns is heavily influenced by the animacy of the PR referent — most commonly the notions that allow human or animal possessor referents are expressed through pronouns — as well as by the overall context and reference of the text — the referent has to be introduced into the text before the pronoun is used (or after, as example (273) illustrates).

The differences between the use of the s-genitive and PPs are intentionally left out of this section, as I return to this topic in section 6.3.5, where the notions of possession are discussed in more detail with the focus on possessive variation. In the next section, I turn to the main topic of this chapter, namely the variables associated with the selection of either the s-genitive or the prepositional construction.

6.3 Variables affecting the selection of the s-genitive vs. the prepositional construction

In this section, each of the variables that may affect the selection of the s-genitive vs. the prepositional construction is discussed individually. The following variables are taken into consideration: animacy, definiteness, topicality, length of PR and PM phrases, semantic notions of possession, as well as number, countability, concreteness, and register of the corpus texts. For the principles of annotation for each of these factors, see section 4.3.2. The aim of this part of the study is to analyse in detail the characteristics of the s-genitive and the prepositional construction, and to examine in what way and to what extent the abovementioned variables are related to the selection of one or the other construction.

Table 43. The frequency of Danish and Swedish s-genitive and PP constructions

Language	s-gen	PP	Total
Danish	888	261	1,149
	77.3%	22.7%	100.0%
Swedish	684	572	1,256
	54.5%	45.5%	100.0%
Total	1,572	833	2,405
	65.4%	34.6%	100.0%

In the remaining part of this chapter only the s-genitive and the prepositional construction will be analysed. The overall frequencies of these two constructions in Danish and Swedish are repeated in Table 43.

While the Swedish data are quite uniformly distributed between the two constructions, the Danish data see the s-genitive construction heavily overrepresented. The prepositional construction is not as frequent in Danish literary, press and blog texts as in their Swedish counterparts. This discrepancy will have consequences in the comparison of how the independent variables are associated with each construction and in the statistical models presented in section 6.4, as the Danish dataset strongly favours the s-genitive.

6.3.1 Animacy

The effect of animacy on genitive variation has been broadly studied in English, demonstrating that, compared with the prepositional construction, the s-genitive strongly favours possessors higher on the animacy scale (Altenberg 1982; Jucker 1993; Rosenbach 2002; 2005; 2008; 2017; Kreyer 2003; Hinrichs & Szmrecsanyi 2007). For a broader theoretical discussion of the factor of animacy see section 4.1.1. Based on the results obtained from the diachronic study (see section 5.3.1), which clearly indicated that the genitive construction favoured human and animate possessor referents over inanimate ones in both Danish and Swedish, I hypothesize that the same tendency applies to the contemporary s-genitive construction.

Table 44 illustrates the distribution of animacy values among possessor referents in the Danish corpus. In the table two rows of percentage values are shown: *% within Animacy*, in which a particular animacy value is taken as 100%; and *% within Possessive construction*, in which I present the proportion of a particular animacy value among all the examples of a particular construction (s-genitive or PPs).

A chi-square test of independence was performed to test the association between the animacy of the possessor on the one hand, and the possessive construction on the other. The null hypothesis states that animacy of PR is not associated with either the s-genitive or prepositional phrases. Since the *p*-value reported below Table 44 is lower than 0.001, and thus the probability of Type 1 error is very small, I reject the null hypothesis and conclude that there is, in fact, a significant association between the animacy of the possessor referent and the possessive construction.

In terms of total values, inanimate possessors are the most frequent, followed by human possessors. Collective, temporal and spatial PR referents are nearly equally frequent in the Danish dataset. Further, human, animal, collective and temporal possessors display a very similar proportion: ca. 90% of all possessors occur with the s-genitive, while only ca. 10% of possessors occur with the prepositional construction. It has to be noted, however, that animal referents are very infrequent in the dataset; the results for this category are thus not reliable. The remaining two categories, spatial and inanimate possessor referents, still favour the s-genitive construction, but the proportion here is less one-sided, as ca. 35% of instances occur with the prepositional construction.

Table 44. Animacy of possessors in Danish

Animacy of the possessor	Count & percentage	s-gen	PP	Total
HUMAN	Count	286	29	315
	% within Animacy	90.8%	9.2%	100.0%
	% within Possessive construction	32.2%	11.1%	27.4%
ANIMAL	Count	16	1	17
	% within Animacy	94.1%	5.9%	100.0%
	% within Possessive construction	1.8%	0.4%	1.5%
COLLECTIVE	Count	103	18	121
	% within Animacy	85.1%	14.9%	100.0%
	% within Possessive construction	11.6%	6.9%	10.5%
TEMPORAL	Count	96	8	104
	% within Animacy	92.3%	7.7%	100.0%
	% within Possessive construction	10.8%	3.1%	9.1%
SPATIAL	Count	80	42	122
	% within Animacy	65.6%	34.4%	100.0%
	% within Possessive construction	9.0%	16.1%	10.6%
INANIMATE	Count	307	163	470
	% within Animacy	65.3%	34.7%	100.0%
	% within Possessive construction	34.6%	62.5%	40.9%
Total	Count	888	261	1,149
	% within Animacy	77.3%	22.7%	100.0%
	% within Possessive construction	100.0%	100.0%	100.0%

$\chi^2 = 100.956$, $df = 5$, $p < 0.001$

Examining the proportions of particular notions of possession within one construction (row *% within Possessive construction* in Table 44), we observe that the s-genitive construction occurs most frequently with inanimate possessor referents (34.6% of all instances of the s-genitive), but human PR referents are nearly equally frequent (32.2%). The prepositional construction also occurs most frequently with inanimate possessor referents — as many as 62.5% of all instances of possessive prepositional phrases include an inanimate PR. Only 11.1% of all prepositional constructions include a human PR referent. The association of the two variables is then clear: while the s-genitive occurs with human and inanimate PRs in near equal proportions, the prepositional construction strongly favours inanimate PR referents. This confirms the hypothesized effect of animacy on the s-genitive construction, namely, that inanimate PR referents are more likely to occur in a prepositional construction.

Table 45 illustrates the distribution of animacy values among possessor referents in the Swedish corpus. Again, a chi-square test of independence was performed to test the association between animacy of the possessor referent and the possessive construction, with the null hypothesis stating that there is no such association. The *p*-value is below 0.001; thus,

it is reasonable to reject the null hypothesis and state that there is a significant association between these two values.

Table 45. Animacy of possessors in Swedish

Animacy of the possessor	Count & percentage	s-gen	PP	Total
HUMAN	Count	247	59	306
	% within Animacy	80.7%	19.3%	100.0%
	% within Possessive construction	36.1%	10.3%	24.4%
ANIMAL	Count	4	3	7
	% within Animacy	57.1%	42.9%	100.0%
	% within Possessive construction	0.6%	0.5%	0.6%
COLLECTIVE	Count	86	35	121
	% within Animacy	71.1%	28.9%	100.0%
	% within Possessive construction	12.6%	6.1%	9.6%
TEMPORAL	Count	61	14	75
	% within Animacy	81.3%	18.7%	100.0%
	% within Possessive construction	8.9%	2.4%	6.0%
SPATIAL	Count	63	70	133
	% within Animacy	47.4%	52.6%	100.0%
	% within Possessive construction	9.2%	12.2%	10.6%
INANIMATE	Count	223	391	614
	% within Animacy	36.3%	63.7%	100.0%
	% within Possessive construction	32.6%	68.4%	48.9%
Total	Count	684	572	1,256
	% within Animacy	54.5%	45.5%	100.0%
	% within Possessive construction	100.0%	100.0%	100.0%

$\chi^2 = 204.571$, $df = 5$, $p < 0.001$

The results obtained from the Swedish texts are quite similar to the Danish ones. Inanimate PR referents are the most frequent in the dataset, followed by human PR referents. The animal category has to be excluded from the analysis due to insufficient data, which is hardly unexpected as no particular texts focusing on animals were included in the corpora. The last three categories (collective, spatial and temporal) together constitute ca. 30% of the dataset, just as in the Danish case. There is, however, an evident difference between the Danish and Swedish results when one compares how many instances of prepositional phrases there are for each category. In every single category there are more examples of the prepositional construction in Swedish than in Danish. In the Swedish texts, the s-genitive occurs in the majority of examples in three categories: human, collective and temporal possessor referents, in which it constitutes between 70% and 80% of all examples. In the two remaining categories, spatial and inanimate PR referents, it is the prepositional construction that constitutes the majority (52.6% in the spatial category and 63.7% in the inanimate

category). In the Danish texts, for comparison, the highest proportion of the PP construction is found in the inanimate category, where it constitutes 34.7% of all examples.

As regards the proportions of particular notions of possession within one construction (row *% within Possessive construction* in Table 45), the Swedish results greatly resemble the Danish ones. The s-genitive is most frequently used with human PR referents (36.1%), but inanimate PR referents are also very frequent (32.6%). The prepositional construction is also the most frequently used with inanimate PRs, and it evidently favours this category over others, as 68.4% of all PPs include an inanimate PR referent. In conclusion, even though the proportions of each construction across different categories of animacy vary in Danish and Swedish, there is a discernible tendency for the prepositional construction to favour inanimate PR referents in both languages.

Further, it is worthwhile to examine the frequencies of particular combinations of possessor and possessum phrases with respect to their animacy. As mentioned in section 4.1.1, the effects of animacy are discernible in many different grammatical constructions, for instance, in noun–noun relations or syntactic functions. The hierarchy of animacy will often be reflected in such instances, in that the subject will be higher on the animacy scale than the object, or the modifier will be higher on the animacy scale than the head noun (Dahl & Fraurud 1996; Rosenbach 2005; Dahl 2008). In a study based on a corpus of Swedish texts, Dahl and Fraurud (1996: 53–54) find that subjects in Swedish transitive sentences are usually higher in animacy than the objects, or both are at the same level of animacy. Overall, more than 97% of sentences in the studied corpus follow the constraint that the subject should not be lower than the object as regards animacy. In the same paper, Dahl and Fraurud also analyse the animacy of preposed NP modifiers and their heads, namely possessive constructions with the s-genitive or pronouns (1996: 54–55). The results from their study are given in Table 46. Those authors use the terms *person* and *non-person* referent for what I refer to here as human and inanimate referents.

Table 46. Distribution of possessive NPs according to animacy of possessor and possessum phrases in Dahl and Fraurud (1996: 55)

Possessor	Possessum	Frequency	Percentage
HUMAN	INANIMATE	608	43.1%
INANIMATE	INANIMATE	674	47.8%
HUMAN	HUMAN	93	6.6%
INANIMATE	HUMAN	36	2.5%
Total		1,411	100.0%

In that study, only 2.5% of possessive phrases did not follow the constraint that the modifier should be higher in animacy than the head noun. In comparing these results with those of the present study, it is important to note that the number of instances of possessive NPs is over twice as large in Dahl and Fraurud (1996) than in each language in the present study. The data cited in Table 46 also include other possessive determiners such as pronouns, which is not the case in the present study. Furthermore, the authors do not mention excluding any possessive expressions, so I assume that such relationships as OWNERSHIP or DISPOSAL

(which occur almost exclusively with human referents) are included in their data, unlike in the present study. The distribution of the s-genitive NPs according to animacy of the possessor and possessum phrases in Danish and Swedish is given in Tables 47 and 48.

Table 47. Distribution of s-genitive NPs according to animacy of possessor and possessum phrases in Danish

Danish s-genitive	Animacy of the possessum			
Animacy of the possessor	HUMAN	COLLECTIVE	INANIMATE	Total
HUMAN	28	4	254	286
	3.2%	0.5%	28.6%	32.2%
ANIMAL	0	0	16	16
	0.0%	0.0%	1.8%	1.8%
COLLECTIVE	20	4	79	103
	2.3%	0.5%	8.9%	11.6%
TEMPORAL	4	4	88	96
	0.5%	0.5%	9.9%	10.8%
SPATIAL	21	9	50	80
	2.4%	1.0%	5.6%	9.0%
INANIMATE	25	2	280	307
	2.8%	0.2%	31.5%	34.6%
Total	98	23	767	888
	11.0%	2.6%	86.4%	100.0%

Table 48. Distribution of s-genitive NPs according to animacy of possessor and possessum phrases in Swedish

Swedish s-genitive	Animacy of the possessum			
Animacy of the possessor	HUMAN	COLLECTIVE	INANIMATE	Total
HUMAN	13	4	230	247
	1.9%	0.6%	33.6%	36.1%
ANIMAL	0	0	4	4
	0.0%	0.0%	0.6%	0.6%
COLLECTIVE	8	11	67	86
	1.2%	1.6%	9.8%	12.6%
TEMPORAL	9	6	46	61
	1.3%	0.9%	6.7%	8.9%
SPATIAL	14	4	45	63
	2.0%	0.6%	6.6%	9.2%
INANIMATE	14	7	202	223
	2.0%	1.0%	29.5%	32.6%
Total	58	32	594	684
	8.5%	4.7%	86.8%	100.0%

Here, all instances of the s-genitive constitute 100.0% respectively in Danish and Swedish. The scale of animacy in the following tables is more detailed, as it includes animal, collective, spatial and temporal referents. Note, however, that the animal category is not included for the animacy of the possessum — no instances of animal PM referents were found

in the corpus. Similarly, locative and temporal PM referents were so few in the dataset (0 instances in Danish and 7 instances in Swedish) that they are subsumed in the inanimate category in the following tables.

Overall, a vast majority of PM referents are inanimate in both languages, which confirms Dahl and Fraurud's findings. Combinations of human and collective referents within the same possessive NP are quite rare — together they constitute 6.3% of all s-genitive constructions in Danish and 5.3% in Swedish. Some examples of such constructions are given in (282) and (283). Again, these results are very similar to those found by Dahl and Fraurud.

(282) | *hade* | *han* | *förvissat* | *sig* | *om* | *att* | ***Stefan Löfven-s*** |
| had | 3SG.M | assured | REFL | about | that | Stefan Löfven-S |

| ***statssekreterare*** | *nått-s* | *av* | *information-en* |
| state.secretary | reached-PASS | of | information-DEF |

'[...] he had made sure that the information reached Stefan Löfven's state secretary.'
(SV, Bjereld 2017)

(283) | *Det* | *er* | *mere* | ***præst-en-s*** | ***kone*** | *som* | *udadtil* | *er* | *et* |
| 3SG.N | is | more | priest-DEF-S | wife | who | outwardly | is | INDF |

| *beskedent* | *og* | *selvudslettende* | *menneske* |
| modest | and | self.effacing | person |

'It is rather the priest's wife who outwardly is a modest and self-effacing person.'
(DA, Leine 2014)

Temporal and spatial possessors do occasionally occur with human PM referents, as example (284) illustrates, but they are most frequently combined with inanimate PM referents, as in examples (285) and (286). Overall, the various combinations of inanimate PRs and inanimate PMs (the last three categories in Tables 47 and 48) are the most frequent in Danish (together they constitute 47.1% of all s-genitive constructions) and second most frequent in Swedish (42.8% of all instances of the s-genitive).

(284) | *og* | *solgte* | *det* | *på* | *markedsplads-en* | *til* | ***by-en-s*** | ***borgere*** |
| and | sold | 3SG.N | on | marketplace-DEF | to | city-DEF-S | citizen.PL |

'and sold it on the marketplace to the city's citizens.' (DA, Bjergegaard 2014)

(285) | *Personligen* | *tycker* | *jag* | *att* | *journalist-er* | *har* | ***Sverige-s*** |
| personally | think | 1SG | that | journalist-PL | have | Sweden-S |

| ***viktigast-e*** | ***jobb***. |
| most.important-WK | job |

'Personally, I think that journalists have Sweden's most important job.'
(SV, Lindqvist 2017)

(286) **To   dag-e-s   konference   er   overvældende.**
     two   day-PL-S   conference   is   overwhelming
     'A two-day conference is overwhelming.' (DA, Bigoni 2016)

The most frequent combination in Swedish is human PR and inanimate PM (44.0% of all instances of the s-genitive). It is also very frequent in Danish, as it constitutes 39.3% of all s-genitive constructions. So far, the results for both Danish and Swedish largely confirm the results of the study by Dahl and Fraurud (1996). The last combination, namely an inanimate PR referent and a human/collective PM referent, occurs in only 3.0% of all s-genitives in both Danish and Swedish. However, if one takes all the inanimate categories together (i.e. spatial, temporal and inanimate), the instances of s-genitive constructions that do not follow the constraint of animacy constitute 7.3% in Danish and 7.9% in Swedish. Examples of such constructions are given in (287) and (288).

(287) *der   får   flere   rapport-er   fra   **færge-r-ne-s**   **kaptajn-er***
     that   receive several report-PL   from   ferry-PL-DEF.PL-S   captain-PL

     om   ekstraordinært   mange   menneske-r   på   hav-et
     about   extraordinarily   many   people-PL   on   sea-DEF
     '[...] that receives several reports from the ferries' captains about extraordinarily maany people at sea.' (DA, Trovled 2018)

(288) *Beslut-et   hälsade-s   med   jubel från   **skolidrott-en-s**   **främjare**.*
     decision-DEF greeted-PASS with   cheer from   school.sport-DEF-S   advocate.PL

     'The decision was greeted with cheers from school sports' advocates.' (SV, Sörlin 2016)

The overall results confirm that, firstly, the majority of PM referents are inanimate and, secondly and subsequently, that possessor referents in the s-genitive construction tend to be higher in animacy than the possessum referents. So far, I have discussed the animacy hierarchy in PR and PM referents with regard to the s-genitive construction, as the aim was to compare the results with those found in Dahl and Fraurud (1996). The distribution of the animacy values of PR and PM referents in prepositional constructions is given in Tables 49 and 50.

The distribution of the PP construction presented here is nearly identical to that of the s-genitive construction shown in Tables 47 and 48. Note also that the distribution in both languages is very similar, even though there are twice as many prepositional constructions in Swedish as in Danish in the dataset. In both languages over 85% of PM referents are inanimate. The most frequent combination includes an inanimate PR referent and an inanimate PM referent (together with spatial and temporal categories, these constitute 72.4% of all PPs in Danish and 72.9% in Swedish). The least frequent are instances of human PR and PM referents (see example (289)) and instances of inanimate PR and human PM referents (see example (290)).

Table 49. Distribution of prepositional constructions according to animacy of possessor and possessum phrases in Danish

Danish PP	Animacy of the possessum			
Animacy of the possessor	HUMAN	COLLECTIVE	INANIMATE	Total
HUMAN	3	1	25	29
	1.1%	0.4%	9.6%	11.1%
ANIMAL	0	0	1	1
	0.0%	0.0%	0.4%	0.4%
COLLECTIVE	7	0	11	18
	2.7%	0.0%	4.2%	6.9%
TEMPORAL	0	0	8	8
	0.0%	0.0%	3.1%	3.1%
SPATIAL	8	5	29	42
	3.1%	1.9%	11.1%	16.1%
INANIMATE	11	0	152	163
	4.2%	0.0%	58.2%	62.4%
Total	29	6	226	261
	11.1%	2.3%	86.6%	100.0%

Table 50. Distribution of prepositional constructions according to animacy of possessor and possessum phrases in Swedish

Swedish PP	Animacy of the possessum			
Animacy of the possessor	HUMAN	COLLECTIVE	INANIMATE	Total
HUMAN	8	0	51	59
	1.4%	0.0%	8.9%	10.3%
ANIMAL	0	0	3	3
	0.0%	0.0%	0.5%	0.5%
COLLECTIVE	12	4	19	35
	2.1%	0.7%	3.3%	6.1%
TEMPORAL	0	0	14	14
	0.0%	0.0%	2.4%	2.4%
SPATIAL	15	4	51	70
	2.6%	0.7%	8.9%	12.2%
INANIMATE	33	6	352	391
	5.8%	1.0%	61.5%	68.4%
Total	68	14	490	572
	11.9%	2.4%	85.7%	100.0%

(289) ***Föräldr-ar-na*** ***till*** ***intersexbarn*** *måste dock* *samråda*
parent-PL-DEF.PL to intersex.child.PL must however consult

med *läkare och* *noggrann* *psykologisk* *undersökning genomför-s.*
with doctor and thorough psychological examination undertake-PASS
'However, the parents of intersex children must consult a doctor and a thorough psychological examination is undertaken.' (SV, Rönnberg 2017b)

(290)   *og*   *blev*   **en**   **af**   **de**   **mest**   **magtfuld-e**   **person-er**   **i**
        and   became   one   of   DEF   most   powerful-WK   person-PL   in

       dansk   **kulturliv**
       Danish   cultural.life
       'and became one of the most powerful people in Danish cultural life'
       (DA, Bludnikow 2018)

To summarize, the relative frequencies of the s-genitive and prepositional phrases with respect to the animacy of the possessor phrase reveal that the prepositional construction favours inanimate PR referents, while the s-genitive is nearly equally distributed between human and inanimate PR referents in both languages. Further, we observe that the internal animacy hierarchy within a possessive expression does follow the constraint stating that the PR referent (modifier) should not be lower in animacy than the PM referent (head noun). The results also confirm that the internal animacy hierarchy in possessive expressions studied here is directly related to the semantic notions of possession — there are simply not that many contexts in which human referents will be acceptable as PM referents, with the exception of KINSHIP and SOCIAL ROLE relationships. The notions of possession most frequently found in the present corpus, namely ABSTRACT, ATTRIBUTIVE, LOCATIVE and PART–WHOLE relations, all nearly exclusively involve an inanimate PM referent, which is reflected in the results presented in this section.

6.3.2 Definiteness

As already discussed in section 5.3.2, there is a general tendency for s-genitive possessor phrases to be overtly definite in both Danish and Swedish (see Hansen 1967: 209 for Danish; Teleman, Hellberg & Andersson 2010b: 25 for Swedish). This tendency stems from the function of genitival possessors as determiners — they render the head noun (the PM referent) definite. To do that successfully and efficiently (in accordance with the economy of language; see section 4.1.2), the PR referent, which serves as a reference point for identifying the PM referent, should be easily accessible and familiar, and thus definite. Based on that, as well as on the results from the diachronic corpus (Chapter 5), which indicate a steady rise of definite possessors in the genitive across the studied periods, a hypothesis can be put forward stating that the s-genitive construction in Danish and Swedish favours definite PR referents over indefinite ones. To operationalize definiteness for the purposes of this study, five categories are used: proper name, definite, possessive, zero-marked, and indefinite referents (see section 4.3.2 for a detailed description and examples). The factor of definiteness operationalized in this way overlaps to some extent with the accessibility scale, in which proper name referents are judged as the most accessible and familiar (right after pronominal referents), followed by relational (kinship) referents, common definite nouns and common indefinite nouns (O'Connor, Maling & Skarabela 2013: 98).

Table 51 illustrates the distribution of definiteness values across possessors in the s-genitive and the prepositional construction in Danish.

Table 51. Definiteness of possessors in Danish

Definiteness of the possessor	Count & percentage	s-gen	PP	Total
PROPER NAME	Count	232	55	287
	% within Definiteness	80.8%	19.2%	100.0%
	% within Possessive construction	26.1%	21.1%	25.0%
DEFINITE	Count	556	125	681
	% within Definiteness	81.6%	18.4%	100.0%
	% within Possessive construction	62.6%	47.9%	59.3%
POSSESSIVE	Count	17	7	24
	% within Definiteness	70.8%	29.2%	100.0%
	% within Possessive construction	1.9%	2.7%	2.1%
INDEFINITE	Count	69	51	120
	% within Definiteness	57.5%	42.5%	100.0%
	% within Possessive construction	7.8%	19.5%	10.4%
ZERO-MARKED	Count	14	23	37
	% within Definiteness	37.8%	62.2%	100.0%
	% within Possessive construction	1.6%	8.8%	3.2%
Total	Count	888	261	1,149
	% within Definiteness	77.3%	22.7%	100.0%
	% within Possessive construction	100.0%	100.0%	100.0%

χ^2 = 69.557, df = 4, p < 0.001

A chi-square test of independence was performed to test whether there is a significant association between definiteness and possessive construction. The very low *p*-value indicates that the null hypothesis stating that there is no association can be rejected. In terms of total values, definite possessor referents constitute a majority in the Danish dataset (59.3% of all possessive constructions). The second largest group is proper name possessor referents (25.0%), followed by indefinite PR referents (10.4%). Possessive and zero-marked PR referents constitute a very small part of the data; nonetheless, they had to be treated separately as they are neither definite nor indefinite (especially in the case of zero-marked referents).

In the first two categories, proper name and definite, the proportion of the s-genitive and PP constructions is ca. 80% to 20% (row *% within Definiteness* in Table 51), which is nearly the same as the overall number of these constructions in the Danish dataset (77.3% to 22.7%). Not much can be gleaned from these results, as the frequencies are not particularly different from the average. The same can be said about the possessive category, which in addition has the lowest frequency in the Danish texts. Zero-marked possessor referents, even though there are few of these in the data, show quite a clear preference for the prepositional construction. Further, this type of referents constitutes 8.8% of all instances of PPs in the dataset, but only 1.6% of all instances of the s-genitive. Some examples of this type of construction are given in (291–292).

(291) | *Vi* | *har* | *efterhånden* | *forstået* | ***betydning-en*** | ***af*** | ***kultur*** |
|------|------|------|------|------|------|------|
| 1PL | have | gradually | understood | importance-DEF | of | culture |

      'We have gradually understood the importance of culture.'
      (DA, Toftegaard Selsing 2019)

(292) | *Men* | ***indførelse-n*** | ***af*** | ***demokrati*** | *har* | *været* | *en* | *langsom* |
|------|------|------|------|------|------|------|------|
| but | introduction-DEF | of | democracy | has | been | INDF | slow |

      proces
      process
      'But the introduction of democracy has been a slow process.' (DA, Morsing 2017)

As regards indefinite possessor referents, most of them occur with the s-genitive construction (57.5%). However, given that the total number of examples with the s-genitive in the data is considerably larger than the number of examples with PPs, the frequency of indefinite PR referents in prepositional constructions is worth noting. 19.5% of all PPs include an indefinite PR referent (see example (293)), while only 7.8% of all s-genitive constructions include indefinite referents (see example (294)). The picture of possessor definiteness obtained from the Danish corpus does not allow a conclusion that one construction favours a certain category of possessors; it is worth noting, however, that the only categories in which PPs occur somewhat more frequently are zero-marked and indefinite PR referents, which already shows a tendency for the s-genitive to disfavour these types of referents.

(293) | *Fra* | *tid* | *til* | *anden* | *dukkede* | *hans* | *ansigt* | *også* | *op* |
|------|------|------|------|------|------|------|------|------|
| from | time | to | another | appeared | 3SG.POSS.M | face | also | up |

på	***forside-n***	***af***	***et***	***ugeblad***.
on	cover-DEF	of	INDF	weekly.magazine

      'From time to time, his face also appeared on the cover of a weekly magazine.'
      (DA, Ostergaard 2013)

(294) | *Og* | *lyd-en* | *af* | ***en*** | ***helikopter-s*** | ***propeller*** | *over* | *os.* |
|------|------|------|------|------|------|------|------|
| and | sound-DEF | of | INDF | helicopter-S | propeller | over | 1PL |

      'And the sound of a helicopter's propeller over us.' (DA, Rosenstand 2017)

Table 52 illustrates the distribution of definiteness values across possessors in the s-genitive and the prepositional construction in the Swedish texts. Since the chi-square test of independence yields a very low *p*-value, it is reasonable to assume that there is a statistically significant association between definiteness of the possessor phrase and the possessive construction in the Swedish dataset. Similarly to Danish, definite PR referents are the most frequently used referents (48.4% of all PR referents in Swedish), proper name referents constitute the second largest group (28.7%) and indefinite referents the third (17.0%). Possessive and zero-marked referents occur with marginal frequency in the data.

Table 52. Definiteness of possessors in Swedish

Definiteness of the possessor	Count & percentage	s-gen	PP	Total
PROPER NAME	Count	238	122	360
	% within Definiteness	66.1%	33.9%	100.0%
	% within Possessive construction	34.8%	21.3%	28.7%
DEFINITE	Count	351	257	608
	% within Definiteness	57.7%	42.3%	100.0%
	% within Possessive construction	51.3%	44.9%	48.4%
POSSESSIVE	Count	18	17	35
	% within Definiteness	51.4%	48.6%	100.0%
	% within Possessive construction	2.6%	3.0%	2.8%
INDEFINITE	Count	75	139	214
	% within Definiteness	35.0%	65.0%	100.0%
	% within Possessive construction	11.0%	24.3%	17.0%
ZERO-MARKED	Count	2	37	39
	% within Definiteness	5.1%	94.9%	100.0%
	% within Possessive construction	0.3%	6.5%	3.1%
Total	Count	684	572	1,256
	% within Definiteness	54.5%	45.5%	100.0%
	% within Possessive construction	100.0%	100.0%	100.0%

$\chi^2 = 93.244$, $df = 4$, $p < 0.001$

The overall proportions of the s-genitive and the prepositional construction in the Swedish texts are 54.5% and 45.5% respectively. Only two categories, definite and possessive, display proportions that are close to this average (row *% within Definiteness* in Table 52), and thus, no conclusions can be drawn as to which category is preferred by, for example, the s-genitive. However, the overall proportion of definite referents among all of the s-genitive constructions is 51.3%, compared with 44.9% in all instances of PPs. There is, therefore, a visible — albeit small — tendency for definite referents to occur with the s-genitive rather than PPs. Examples of definite referents, with both constructions, are presented in (295) and (296).

(295) *Det stärkte* **den svensk-a höger-n-s självförtroende**.
3SG.N strengthened DEF Swedish-WK right-DEF-S self.confidence
'It strengthened the Swedish right wing's self-confidence.' (SV, Ohlsson 2017)

(296) *är det viktigt att inte avleda uppmärksamhet-en*
is 3SG.N important to not divert attention-DEF

från **budskap-et *i* text-en**
from message-DEF in text-DEF
'[...] it is important not to divert the attention from the message of the text.'
(SV, Holmberg 2017c)

As regards proper name referents, the s-genitive is clearly the preferred option for this category, as it constitutes two-thirds of all instances with proper names (see example (297)). As already mentioned, the possessive category, namely PR referents that are themselves head NPs in a possessive construction (see example (298)), is quite evenly distributed between the two constructions.

(297) | *Att* | ***Lisa-s*** | ***lögner*** | *inte* | *kom* | *fram* | *under* | *rättegång-en* | *kan* | *tycka-s* |
| that | Lisa-S | lie.PL | not | came | forth | under | trial-DEF | can | seem-REFL |

vara   *märkligt.*
be   strange
'That Lisa's lies did not come to light during the trial may seem strange.'
(SV, Cantwell 2017)

(298) | *Jag* | *vill* | *till och med* | *hävda* | *att* | *detta* | *rör* | *sig* | *om* |
| 1SG | want | even | claim | that | DEM | is.about | REFL | about |

min   *identitet-s*   *kärna*
1SG.POSS   identity-S   core
'I even want to claim that this is about my identity's core' (SV, Rönnberg 2017a)

The zero-marked category is overwhelmingly used with the prepositional construction (see example (299)). Even though this category is not very frequent in the dataset, there is a clear tendency for such referents to occur with a PP construction in the Swedish texts. Similarly, indefinite PR referents display a preference for the prepositional construction (see example (300)). The hypothesized tendency for the s-genitive to 'dislike' indefinite possessor phrases is also verified by the data, since only 11.0% of all PR referents with the s-genitive are indefinite.

(299) | *Johanna* | *har* | *alltid* | *haft* | *ett* | *gott* | *omdöme.* | *Sett* | *och* |
| Johanna | has | always | had | INDF | good.ST | judgement | seen | and |

| *förstått* | *hans* | *potential,* | *också* | *i* | ***stund-er*** | ***av*** |
| understood | 3SG.POSS.M | potential | also | in | moment-PL | of |

motgång   *och*   *nederlag*.
adversity   and   defeat
'Johanna has always had good judgement. [She has] seen and understood his potential, even in moments of adversity and defeat.' (SV, Eriksson 2014)

(300) | *Det* | *anser* | ***initiativtagar-na*** | ***till*** | ***ett*** | ***global-t*** | ***toppmöte*** |
| 3SG.N | consider | initiatior.PL-DEF.PL | to | INDF | global-ST | summit |

'This is the opinion of the initiators of a global summit.' (SV, Snaprud 2016)

Since both Danish and Swedish s-genitive possessors tend to be explicitly definite, it is worthwhile to explore the indefinite PR phrases in the s-genitive in the dataset. Out of 69

indefinite possessors in Danish, 49 are plural (71.0%). Out of 75 indefinite possessors in Swedish, 58 are plural (77.3%). Examples illustrating plural indefinite PR referents are given in (301) and (302).

(301) | *Grund-en* | *i* | *det* | *rasistisk-a* | *tänkande-t* | *är* | *därmed* |
       |------------|-----|-------|---------------|-------------|------|----------|
       | basis-DEF | in | DEF | racist-WK | thinking-DEF | is | therefore |

att	***människ-or-s***	***egenskap-er***	***och***	***plats***	*i*	***värld-en***
that	person-PL-S	quality-PL	and	place	in	world-DEF

bestäm-s	*och*	*kan*	*förklara-s*	*av*	*deras*	*hudfärg,*
determine-PASS	and	can	explain-PASS	of	3PL.POSS	skin.colour

religion	*eller*	*härkomst.*
religion	or	origin

'The basis of racist thinking is therefore that people's qualities and place in the world are determined and can be explained by their skin colour, religion or origin.' (SV, Hagren Idevall 2017)

(302) | *Hus-e,* | *der* | *har* | ***flere*** | ***generation-er-s*** | ***erfaring*** | *i* | *at* |
       |------------|-------|-------|-------------|-----------------------|----------------|-----|------|
       | house-PL | that | have | several | generation-PL-S | experience | in | to |

beskytte	*sig*	*mod*	*den*	*barsk-e*	*vind*	*fra*	*hav-et*
protect	REFL	against	DEF	harsh-WK	wind	from	sea-DEF

'Houses that have several generations' experience in protecting themselves from the harsh wind from the sea' (DA, Ostergaard 2013)

There is no plural indefinite article in Danish or Swedish. These results, therefore, indicate that, firstly, the s-genitive in general disfavours indefinite PR phrases, and secondly, it particularly disfavours indefinite possessors in the singular (namely, those that are overtly marked with an indefinite article). Overall, across the whole dataset, there are only 37 singular indefinite PR referents that occur with the s-genitive (which constitutes 2.4% of all instances of the s-genitive). In comparison, nearly half of all indefinite PR phrases in prepositional constructions are singular (89 out of 190 in both languages), which constitutes 10.7% of all instances of the PP construction in the dataset. The few examples of singular indefinite PRs in the s-genitive include temporal possessors (see example (303)), and a few common nouns denoting non-specific individuals (example (304)) or generic referents (example (305)).

(303) | *[...]* | *hade* | *jag* | *skrivit* | *under* | *kontrakt-et,* | *betalat* | *det* | *överenskomn-a* |
       |---------|--------|-------|-----------|---------|----------------|-----------|-------|-----------------|
       | [...] | had | 1SG | signed | under | contract-DEF | paid | DEF | agreed-WK |

pris-et	*för*	***ett***	***halvår-s***	***hyra***
price-DEF	for	INDF	half.year-S	rent

'[...] I had signed the contract and paid the agreed price for a half-year's rent.' (SV, Nesser 2013)

(304) *mediedækning-en*   *omkring*   **et**   **ung-t**   **menneske-s**   **ofte**
media.coverage-DEF   around   INDF   young-ST   person-S   often

dybt   **tragisk-e**   **død**
deeply tragic-WK   death
'the media coverage of a young person's often deeply tragic death'
(DA, Klastrup 2014)

(305) *Det*   *ingår*   *i*   **en**   **advokat-s**   **dna**   *att*   *larma* *och*
3SG.N is.included   in   INDF   lawyer-S   DNA   to   alert   and

göra sig till
show off
'It is part of a lawyer's DNA to alert and show off' (SV, Cantwell 2017)

In conclusion, the results clearly indicate that the possibility of using a singular indefinite common noun as a possessor with the s-genitive is very limited in both languages. On the other hand, there is an apparent tendency for the s-genitive to occur with proper names and definite referents.

To conclude the topic of the definiteness of referents, it is worthwhile to explore the distribution of definiteness values among the possessum referents in the corpus. The definiteness of the PM phrase cannot constitute one of the variables in the multivariate analysis that will be presented in section 6.4, since the possessum in the s-genitive construction is never overtly marked with either the definite or the indefinite article (see section 3.1.1). Further, as already discussed in Chapter 2 (section 2.5), there is a general agreement that the s-genitive renders the PM phrase definite (e.g. C. Lyons 1999; Rosenbach 2002), even though some researchers suggest that the PM phrase in the s-genitive need not be definite (e.g. Willemse, Davidse & Heyvaert 2009). Based on that and on the results presented above, the assumption is that overtly indefinite PM phrases would occur in prepositional constructions rather than the s-genitive. Figures 33 and 34 illustrate the distribution of prepositional phrases in Danish and Swedish with respect to the definiteness of the PM phrase.

Interestingly, the distribution in both languages is nearly identical. Over half of PM phrases in prepositional constructions are definite, but quite a large proportion — one-third of all of the PM phrases — are indefinite (see examples (306) and (307)). Further, ca. 10% of PM phrases are zero-marked, i.e. bare nouns in the singular.
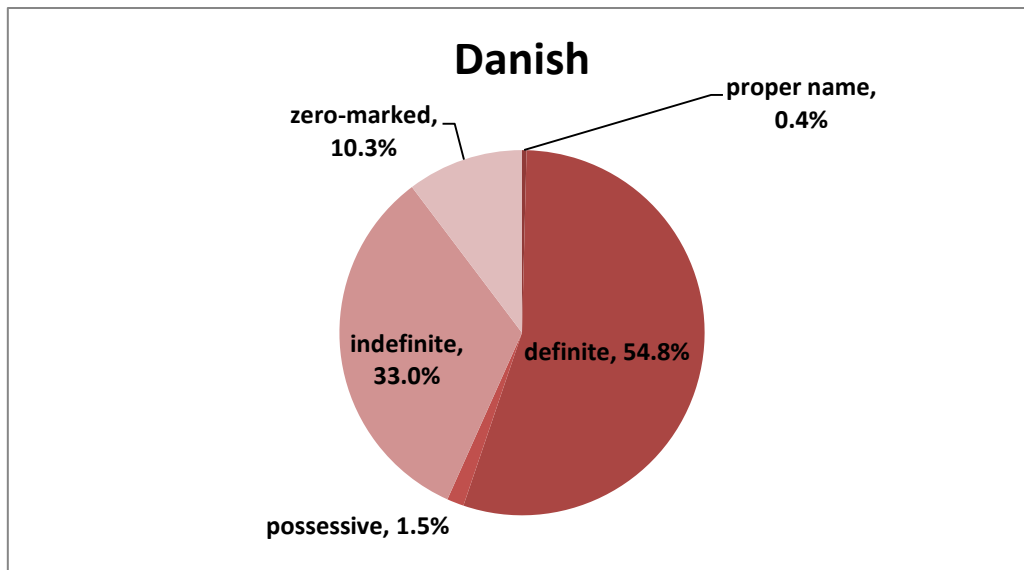
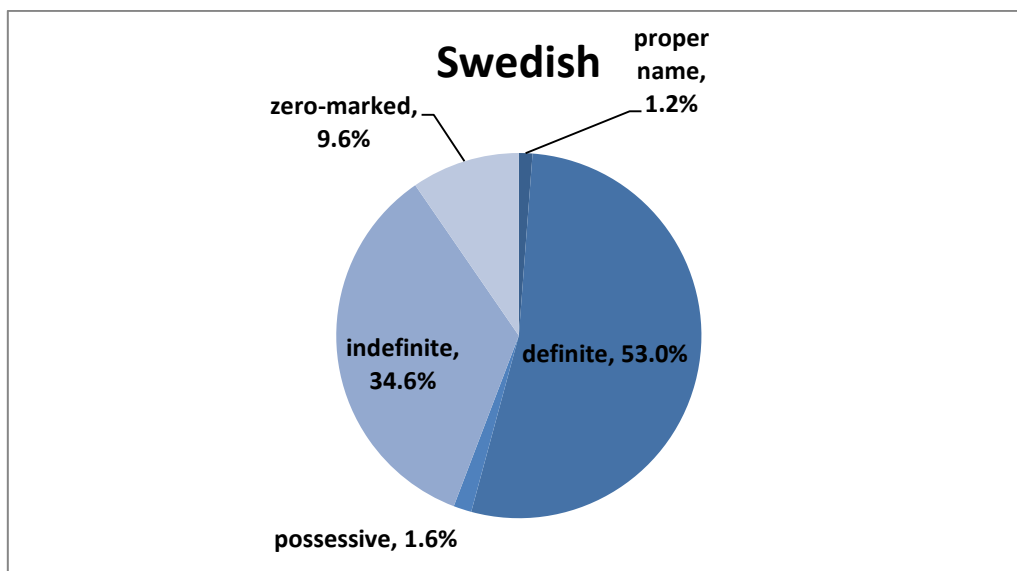Figure 33. Distribution of possessum definiteness values in 261 Danish prepositional phrases

Figure 34. Distribution of possessum definiteness values in 572 Swedish prepositional phrases

(306) *at   manøvrere   blikk-et   gennem   **en   udgave   af***
     to   manoeuvre   gaze-DEF   through   INDF   edition   of

     Gulliver-s   Rejs-er
     Gulliver-S   Travel-PL
     'to manoeuvre the gaze through an edition of Gulliver's Travels' (DA, Leine 2014)

(307) *Om   **en   bok   av   Arlie Russell Hochschild**.*
     about   INDF   book   of   Arlie Russell Hochschild
     'About a book by Arlie Russell Hochschild.' (SV, Demker 2017)

Example (307) could easily be reformulated into the s-genitive, i.e. *Om Arlie Russell Hochschilds bok* 'About Arlie Russell Hochschild's book'. Note, however, that the

preposition *av* 'of' in this context exclusively indicates authorship, while the s-genitive construction is ambiguous — it can refer to authorship, ownership or disposal. Further, the PM referent in the s-genitive construction does not need to fulfil the constraint of exhaustivity and specificity, thus many referents that are rendered definite by simply occurring with the s-genitive determiner are not necessarily definite; compare examples (308–310).

(308) *den*   *svensk-a*   *skola-n-s*   *kris*
         DEF   Swedish-WK   school-DEF-S   crisis
         'the Swedish school's crisis' (SV, RetorikKalle 2015)

(309) non-specific, introductory:
         en   **kris**   *i*   *den*   *svensk-a*   *skola-n*
         INDF   crisis   in   DEF   Swedish-WK   school-DEF
         'a crisis of the Swedish school' (my reformulation)

(310) specific, familiar:
         kris-en   *i*   *den*   *svensk-a*   *skola-n*
         crisis-DEF   in   DEF   Swedish-WK   school-DEF
         'the crisis of the Swedish school' (my reformulation)

Even though the definiteness of the possessum phrase cannot be compared between the s-genitive and the prepositional constructions, it is reasonable to assume that more often than not explicitly indefinite PM phrases will occur with prepositional phrases rather than the s-genitive. There is, however, not enough evidence to fully exclude the possibility of the Danish and Swedish s-genitive occurring with indefinite PM referents. To explore this in more detail, in the next section I analyse the topicality of referents, namely the distinction between given and new referents, which is unquestionably connected to the category of definiteness.

6.3.3 Topicality

Having discussed the category of grammatical definiteness, I will now turn to examine the factor of topicality, which, as a dimension of information structure, is closely related to definiteness. As mentioned in Chapter 4 (see section 4.1.3), topicality is operationalized in the present study on the basis of the number of mentions of a certain referent. In this way, new referents are first-mention referents with no preceding co-referential NPs, while given referents are subsequent mentions of a certain referent. Since given referents have a high level of familiarity and accessibility, the hypothesis is that these will be favoured as possessors in the s-genitive construction, which places the PR referent first. According to the same hypothesis, first-mention PR referents are more likely to occur in the prepositional construction, since it places the PR referent second in the possessive construction.

Table 53 illustrates the distribution of topicality values across possessors in both constructions in Danish. The chi-square test of independence results in a very low *p*-value, thus it is reasonable to state that there is a significant association between topicality of the possessor and the possessive construction.

Table 53. Topicality of possessors in Danish

Topicality of the possessor	Count & percentage	s-gen	PP	Total
GIVEN	Count	589	116	705
	% within Topicality	83.5%	16.5%	100.0%
	% within Possessive construction	66.3%	44.4%	61.4%
NEW	Count	299	145	444
	% within Topicality	67.3%	32.7%	100.0%
	% within Possessive construction	33.7%	55.6%	38.6%
Total	Count	888	261	1,149
	% within Topicality	77.3%	22.7%	100.0%
	% within Possessive construction	100.0%	100.0%	100.0%

χ^2 = 40.745, *df* = 1, *p* < 0.001

Overall, there are more given PR referents than new ones in the Danish texts. A vast majority of all of the given PRs occur with the s-genitive (83.5%). As regards new PR referents, they also occur predominantly with the s-genitive, but the proportion here is less extreme. Examining the proportions within the possessive construction, given PRs constitute over 66% of all instances of the s-genitive. Conversely, new PR referents constitute a majority within all instances of PPs (55.6%).

Table 54 illustrates the distribution of topicality values across possessors in both constructions in Swedish. Again, there is a clear and statistically significant association between the two variables (*p* < 0.001). The results are generally similar to the Danish results, with some minor differences. Firstly, given PR referents are the most frequent in the dataset, although new referents are more frequent in the Swedish than in the Danish texts. Secondly, while given PR referents are most commonly used with the s-genitive in Swedish, new PR referents are most frequently used with the prepositional construction (58.9% of all new PRs). The proportions within the possessive construction in the Swedish texts are nearly identical to those presented above for Danish. In conclusion, the hypothesis that given PR referents favour the s-genitive construction is confirmed by the data from both languages.

Table 54. Topicality of possessors in Swedish

Topicality of the possessor	Count & percentage	s-gen	PP	Total
GIVEN	Count	450	237	687
	% within Topicality	65.5%	34.5%	100.0%
	% within Possessive construction	65.8%	41.4%	54.7%
NEW	Count	234	335	569
	% within Topicality	41.1%	58.9%	100.0%
	% within Possessive construction	34.2%	58.6%	45.3%
Total	Count	684	572	1,256
	% within Topicality	54.5%	45.5%	100.0%
	% within Possessive construction	100.0%	100.0%	100.0%

χ^2 = 74.573, *df* = 1, *p* < 0.001

Further, it is also worthwhile to examine the topicality of possessum referents in both possessive constructions. As discussed in Chapter 4 (section 4.1.3), topicality could potentially have an impact on the selection of a possessive construction, since it has a bearing on the order of the referents. Given information, which is thus familiar and accessible, is usually placed earlier in a construction than new information (Biber et al. 1999: 305–306). Given information is easier to process than new information, and placing it earlier in a construction is more efficient with regard to the economy of language. Thus, my assumption for Danish and Swedish is that in the s-genitive construction, which frequently includes a given PR referent, new possessum referents will be common. Conversely, in the prepositional construction, which includes more new PR referents than the s-genitive does, given possessum referents will be common. Tables 55 and 56 illustrate the distribution of topicality values across possessum phrases in Danish and Swedish.

Table 55. Topicality of possessums in Danish

Topicality of the possessum	Count & percentage	s-gen	PP	Total
GIVEN	Count	183	60	243
	% within Topicality	75.3%	24.7%	100.0%
	% within Possessive construction	20.6%	23.0%	21.1%
NEW	Count	705	201	906
	% within Topicality	77.8%	22.2%	100.0%
	% within Possessive construction	79.4%	77.0%	78.9%
Total	Count	888	261	1,149
	% within Topicality	77.3%	22.7%	100.0%
	% within Possessive construction	100.0%	100.0%	100.0%

χ^2 = 0.685, *df* = 1, *p* = 0.408

Table 56. Topicality of possessums in Swedish

Topicality of the possessum	Count & percentage	s-gen	PP	Total
GIVEN	Count	113	117	230
	% within Topicality	49.1%	50.9%	100.0%
	% within Possessive construction	16.5%	20.5%	18.3%
NEW	Count	571	455	1,026
	% within Topicality	55.7%	44.3%	100.0%
	% within Possessive construction	83.5%	79.5%	81.7%
Total	Count	684	572	1,256
	% within Topicality	54.5%	45.5%	100.0%
	% within Possessive construction	100.0%	100.0%	100.0%

χ^2 = 3.223, *df* = 1, *p* = 0.073

The chi-square test of independence results in very high *p*-values: for both languages the value is higher than the threshold of 0.05. The null hypothesis stating that there is no association between the topicality of PM referents and the possessive construction is thus

retained. In both cases the distribution of given and new PM referents within each construction is not significantly different from the overall distribution of these constructions, namely ca. 77% to 23% in Danish and ca. 55% to 45% in Swedish. We can, however, observe that new PM referents constitute ca. 80% of all PM referents in both languages irrespective of the construction in which they occur. The assumption that the s-genitive construction would include more new PM referents than the PP construction is not confirmed by the data.

Interestingly, the results presented here confirm the results of a 1990 study of Swedish NPs by Fraurud (1990). This was a corpus study of first- and second-mention definite and indefinite NPs. In examining the s-genitive construction, the author found that 85% of the genitive NPs were first-mentions (Fraurud 1990: 406). The author does not differentiate between the topicality of PR and PM phrases, but as the term 'genitive NP' is used for the entire phrase, it is the topicality of the head noun (i.e. possessum referent) that is determined as either first- or second-mention (which in this study corresponds to given and new referents respectively). In the present study, conducted 30 years later, the proportion of first-mention (i.e. new) possessum referents remains unchanged in Swedish (ca. 82%).

To further illustrate the distribution of topicality in possessive constructions in Danish and Swedish, I present the frequencies of all four combination of possessor and possessum phrases with regard to their topicality (see Table 57). The chi-square test of independence allows us to reject the null hypothesis of no association and state that there is a significant association between different combinations of topicality in PR and PM referents and the possessive construction in both languages.

Table 57. Topicality in combinations of possessor (PR) and possessum (PM) in the s-genitive and PP constructions in Danish and Swedish

Topicality combinations	s-gen		PP	
Language	Danish	Swedish	Danish	Swedish
GIVEN PR + GIVEN PM	179	107	58	103
	20.2%	15.6%	22.2%	18.0%
GIVEN PR + NEW PM	410	343	58	134
	46.2%	50.2%	22.2%	23.4%
NEW PR + NEW PM	295	228	143	321
	33.2%	33.3%	54.8%	56.1%
NEW PR + GIVEN PM	4	6	2	14
	0.4%	0.9%	0.8%	2.5%
Total	888	684	261	572
	100.0%	100.0%	100.0%	100.0%

Danish: $\chi^2 = 170.074$, *df* = 1, *p* < 0.001; Swedish: $\chi^2 = 152.267$, *df* = 1, *p* < 0.001

The first combination, where both referents are given, has a relatively steady proportion of ca. 20% irrespective of language and construction. This combination is somewhat less frequent in Swedish than in Danish, but the difference is only marginal. The second type of construction, where the PR referent is given but the PM referent is new, is the most common type in the s-genitive for both languages (see example (311)). Around 50% of all s-genitives have a given possessor and a new possessum. This is in accordance with the

reference-point model of possessives (Langacker 1995: 58–60), which states that the PR phrase functions as a reference point and an anchor that enables the identification of the PM referent. In the case of given PRs and new PMs the function of a reference point is especially salient, since the known and familiar information is used to introduce and anchor new information in the discourse. The same combination (*given PR + new PM*) is much less frequent with the prepositional construction in the dataset.

(311) | *Så* | *när* | **_flicka-n_** | *hade* | *sträckt* | *sig* | *fram* | *i* |
|---|---|---|---|---|---|---|---|
| so | when | girl-DEF | had | reached | REFL | forth | in |

lunchmatsal-en	*idag*	*för*	*att*	*rycka*	*av*	*Elsa*	*halsduk-en*
lunch.room-DEF	today	for	to	snatch	of	Elsa	scarf-DEF

hade	*Elsa*	*beslutat*	*sig*	*för*	*att*	*använda*	*argument*
had	Elsa	decided	REFL	for	to	use	argument.PL

lite	*mer*	*på*	**_flick-an-s_**	**_intellektuell-a_**	**_nivå_**.
little	more	on	girl-DEF-S	intellectual-WK	level

'So when the girl had reached out in the lunch room today to snatch the scarf from Elsa, Elsa had decided to use arguments a little more on the girl's intellectual level.' (SV, Backman 2013)

The third combination, in which both referents are first-mention referents, is much more frequent among PP constructions than among s-genitives. The last pair of referent types is very infrequent in the dataset. Such examples usually include so-called measure genitives (see example (312)) or generic reference.

(312) | *Det* | *finns* | *mycket* | *lite* | *tvivel* | *kring* | *orsak-en* | *till* |
|---|---|---|---|---|---|---|---|
| FORM.SBJ | is | very | little | doubt | around | cause-DEF | to |

uppvärmning-en [...].	*Den*	*säger*	*att*	*det*	*sannolikt*
warming-DEF	3SG.C	says	that	3SG.N	probably

fortfarande	*är*	*teoretiskt*	*möjligt*	*att*	*nå*	*under*
still	is	theoretically	possible	to	reach	under

2	**_grad-er-s_**	**_uppvärmning_**.
two	degree-PL-S	warming

'There is very little doubt about the cause of the warming [...]. It [the research] says that it is probably still theoretically possible to reach warming of below two degrees.' (SV, Rose 2016b)

Just as with animacy (see section 6.3.1), the combination that is contrary to the hierarchy of topicality (i.e. where the PR phrase is neither higher nor equal in topicality to the PM phrase), is the least common. Such constructions are in full opposition to both the reference-point model and to the information-structural constraints, and their infrequency proves that these constraints are, in fact, very significant. In conclusion, while new PM referents are not more

frequently used in one particular construction, it has to be noted that they predominantly occur in combination with given PR referents in the s-genitive construction, but in combination with new PR referents in the PP construction. Further, given PM referents occur almost exclusively with given PR referents, as it is quite contrary to the nature of possessive constructions to introduce the PM referent before referring to its possessor in any way.

Lastly, it is worthwhile to explore the association between topicality and grammatical definiteness. Since both categories rely on similar concepts such as familiarity and identifiability in discourse, one might expect that given referents will have a strong association with definite NPs, while new referents will have a strong association with indefinite NPs. Table 58 illustrates the distribution of definiteness values among given and new possessor referents in the s-genitive construction.

Table 58. Distribution of definiteness values among given and new possessors in the s-genitive in Danish and Swedish

Definiteness by topicality	Danish			Swedish		
s-gen	GIVEN	NEW	Total	GIVEN	NEW	Total
PROPER NAME	156	76	232	171	67	238
	67.2%	32.8%	100.0%	71.8%	28.2%	100.0%
DEFINITE	393	163	556	242	109	351
	70.7%	29.3%	100.0%	68.9%	31.1%	100.0%
POSSESSIVE	8	9	17	9	9	18
	47.0%	53.0%	100.0%	50.0%	50.0%	100.0%
INDEFINITE	19	50	69	27	48	75
	27.5%	72.5%	100.0%	36.0%	64.0%	100.0%
ZERO-MARKED	13	1	14	1	1	2
	92.9%	7.1%	100.0%	50.0%	50.0%	100.0%
Total	589	299	888	450	234	684
	66.3%	33.7%	100.0%	65.8%	34.2%	100.0%

Danish: χ^2 =58.538, *df* = 4, *p* < 0.001; Swedish: χ^2 =37.223, *df* = 4, *p* < 0.001

As the *p*-values reported under the table indicate, there is a significant association between definiteness and topicality of PR referents in the s-genitive in both languages. The results for the possessive and zero-marked categories will be disregarded here, since their frequency is too low to allow any conclusions to be drawn. In Danish texts, both proper name and definite referents display a distribution very similar to the overall distribution, namely ca. 67% of given referents and 33% of new referents. Since this is not much different from the average, I conclude that neither category has a tendency to favour either given or new referents. The only category that displays a significant difference from the average in Danish texts is the indefinite category. There is a strong tendency for indefinite PR referents in the s-genitive to be new, first-mention referents. In Swedish texts, the distribution is very similar. There is some tendency for definite referents to be given, but the frequency of these (71.8%) is not very far from the average of given referents (65.8%). Again, the only clear tendency is for the indefinite category to include mostly new referents. The PR referents in the s-genitive display an association between indefinite and new, but not necessarily between definite and

given. There are many examples of definite NPs that are at the same time first-mention referents, as in examples (313) and (314). These are usually instances of indirect anaphors and generic reference. As already mentioned in Chapter 5 (section 5.3.3), first-mention definite NPs are often anchored not just in the text itself (e.g. in the form of indirect anaphors, as in (313)), but also in a broader discourse-situation or the encyclopaedic knowledge associated with the referent. It may also include generic referents that conventionally occur in a definite form, like *the Earth*, *the sun*, *the government*.

(313)   *Ørum*   *så*   *ind*   *i*   ***park-en****.*   *Det*   *var*   *en*   *grå*   *morgen*
       Ørum   looked   into   in   park-DEF   3SG.N   was   INDF   grey   morning

       med   *meget*   *hvidt*   *i.*   *Kun*   ***træ-er-ne-s***   ***stamme-r***   ***og***
       with   much   white   in   only   tree-PL-DEF.PL-S   trunk-PL   and

       gren-e   *og*   ***busk-e-ne-s***   *sammenfiltring*   *stod*   *sort.*
       branch-PL   and   bush-PL-DEF.PL-S   entanglement   stood   black
       'Ørum looked into the park. It was a grey morning with a lot of white in it. Only the trunks and branches of the trees and the entanglement of the bushes stood black.' (DA, Thomsen 2018)

(314)   *för*   *att*   ***jord-en-s***   *medeltemperatur*   *under*   *det*   *här*
       so   that   earth-DEF-S   average.temperature   under   DEF   here

       sekl-et   *inte*   *ska*   *öka*   *mer*   *än*   *2*   *grad-er*
       century-DEF   not   will   rise   more   than   two   degree-PL
       'so that the Earth's average temperature will not increase more than two degrees in this century' (SV, Rose 2016b)

Another quite counter-intuitive case includes indefinite NPs that are given, or in other words, subsequent-mention referents (315). These are, however, less common than first-mention definites, and they most often feature examples of generic reference.

(315)   *att*   *utsätta-s*   *för*   *det*   *som*   ***många muslim-er***   *drabba-s*
       to   expose-PASS   for   DEM   that   many   Muslim-PL   affect-PASS

       av   *varje*   *dag. [...]*   *Tydligare*   *än*   *så*   *blir*   *inte*
       of   every   day   clearer   than   so   becomes   not

       tankefigur-en   *om*   ***muslim-er-s*** *existens*   *i*   *Europa.*
       thought.figure-DEF   about   Muslim-PL-S   existence   in   Europe
       'to be exposed to what many Muslims suffer every day [...]. The figure of thought about Muslims' existence in Europe does not become clearer than that.' (SV, Vera-Zavala and Olsson 2017)

Table 59 illustrates the distribution of definiteness and topicality among possessor referents in the prepositional construction. The results are largely similar to those presented above for the s-genitive.

Table 59. Distribution of definiteness values among given and new possessors in prepositional constructions in Danish and Swedish

Definiteness by topicality	Danish			Swedish		
PP	GIVEN	NEW	Total	GIVEN	NEW	Total
PROPER NAME	30	25	55	60	62	122
	54.5%	45.5%	100.0%	49.2%	50.8%	100.0%
DEFINITE	59	66	125	138	119	257
	47.2%	52.8%	100.0%	53.7%	46.3%	100.0%
POSSESSIVE	3	4	7	4	13	17
	42.9%	57.1%	100.0%	23.5%	76.5%	100.0%
INDEFINITE	12	39	51	26	113	139
	23.5%	76.5%	100.0%	18.7%	81.3%	100.0%
ZERO-MARKED	12	11	23	9	28	37
	52.2%	47.8%	100.0%	24.3%	75.7%	100.0%
Total	116	145	261	237	335	572
	44.4%	55.6%	100.0%	41.4%	58.6%	100.0%

Danish: χ^2 =12.256, *df* = 4, *p* < 0.02; Swedish: χ^2 =55.244, *df* = 4, *p* < 0.001

The association between the two variables is statistically significant for both languages (although the *p*-value for Danish is higher than for Swedish). Again, there is a clear correlation between indefinite and new referents. In comparison with the s-genitive, possessors in prepositional constructions display a stronger tendency for definite referents to be given, although only in Swedish texts.

To sum up, topicality is a significant factor with regard to the possessor referent, but it is not significant with regard to the possessum referent. In both Danish and Swedish there is a clear correlation between given PR referents and the s-genitive construction, and between new PR referents and the prepositional construction. Further, as regards the correlation between definiteness and topicality, the results indicate that new referents are associated with indefinite referents, but given and definite referents are not correlated in the dataset. This stems from the variety of functions that definite descriptions have in language. Definite marking is not restricted to referents that are familiar and mentioned in the discourse. In the next section I explore the factor of length of the possessor and possessum phrases.

6.3.4 Length of phrase
The next factor that I explore is the length of the possessor and possessum phrases. This variable is based on the so-called Principle of End Weight, which states that a longer or heavier element in a phrase or construction will follow a shorter one. Length has been confirmed as a significant explanatory factor in genitive variation in English (Rosenbach 2002; 2005; Hinrichs & Szmrecsanyi 2007). It is argued that speakers of right-branching languages prefer possessive constructions in which the longer of the two phrases (PR or PM phrase) occurs second. Therefore, the hypothesis for Danish and Swedish is that the s-genitive is expected to occur with the combination *short possessor – long possessum*, and the prepositional construction is expected to occur with the combination *short possessum – long possessor*. The factor of length is counted in syllables in this dissertation, this being more

appropriate for Danish and Swedish (for a detailed account, see section 4.3.2 on principles of annotation).

Table 60 illustrates the descriptive statistics, including the mean, median, and range, for the PR and PM phrases in both constructions in Danish. The results of chi-square tests of independence reported under the table indicate that there is a statistically significant association between the possessive construction and both PR and PM lengths. The length of the possessum phrase in the s-genitive is on average longer than that of the possessor phrase, albeit the difference is not very large and the median is equal for both phrases. Nonetheless, this result does confirm the hypothesis that the PM phrase tends to be longer than the PR phrase in the s-genitive construction. Conversely, in the prepositional construction it is the PR phrase that is on average longer, which again confirms the hypothesis.

Table 60. Length of PR and PM phrases in Danish

Danish	s-gen		PP	
Statistics	PR LENGTH	PM LENGTH	PR LENGTH	PM LENGTH
N	888	888	261	261
Mean	**3.74**	**4.15**	**4.28**	**4.13**
Median	3.00	3.00	4.00	4.00
Std. Deviation	1.845	2.732	2.615	1.996
Range	11	22	17	11
Minimum	1	1	1	1
Maximum	12	23	18	12

PR length: χ^2 = 39.613, *df* = 13, *p* < 0.001; PM length: χ^2 = 35.921, *df* = 17, *p* < 0.005

Additionally, Figures 35 and 36 show boxplots for PR and PM phrases in the respective constructions in Danish. In a boxplot graph, the box constitutes 50% of the data, while each of the so-called inner fences constitutes 25% of the data. Dots and asterisks indicate outliers, namely singular high values that are abnormally far from the central values (the box) and thus tend to skew the mean. The graphs clearly illustrate that possessor phrases in the PP construction are longer and more varied in terms of length than those in the s-genitive, as the box corresponding to the PP construction is more stretched out. As regards the PM phrases (Figure 36), the situation is reversed — the average length of PM phrases is longer in the s-genitive construction, even though the median for the s-genitive is one syllable lower than that for PPs. The possessum phrases in the s-genitive also display a much wider range of values.
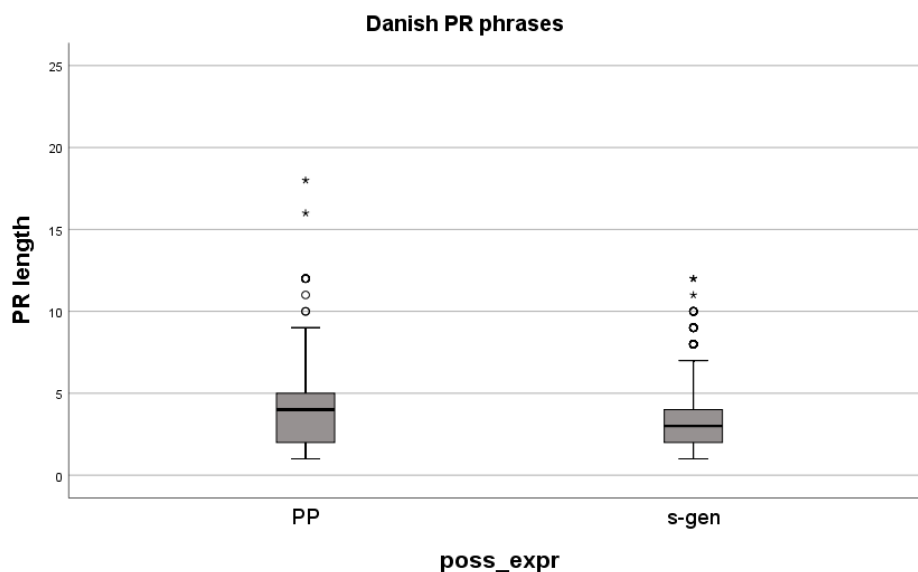
Figure 35. Possessor length in Danish
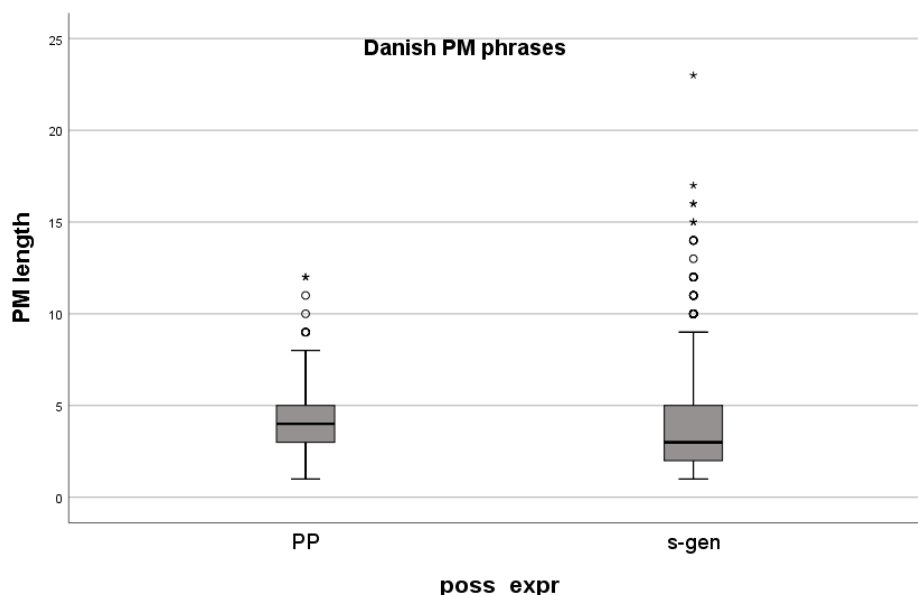
Figure 36. Possessum length in Danish

Below I present examples of some of the longest phrases in the possessive constructions found in the Danish dataset (316–319). These are not representative examples, but rather extreme cases.

(316) s-genitive, 12-syllable PR, 3-syllable PM:

daværende	*premierminister*	*Cameron-s*	*uldne* *svar*	*om*
former	Prime.Minister	Cameron-s	woolly response	about

Tyrkiet-s	*fremtid*	*i*	*EU*
Turkey-s	future	in	EU

'former Prime Minister Cameron's woolly response about Turkey's future in the EU' (DA, Korsgaard 2018)

(317) s-genitive, 3-syllable PR, 23-syllable PM:
nazism-en-s   meget   venstreorientered-e   økonomisk-e programm-er
Nazism-DEF-S very   left.oriented-WK   economic-WK programme-PL

og   ideologi
and   ideology
'the very left-wing-oriented economic programmes and ideology of Nazism'
(DA, Toftegaard Selsing 2019)

(318) prepositional construction, 18-syllable PR, 4-syllable PM:
sikre **hjemsendels-en   af   herboende   syrisk-e   flygtning-e**
ensure repatriation-DEF   of   here.living   Syrian-PL   refugee-PL

og   familiesammenført-e
and   family.reunified-PL
'to ensure the repatriation of Syrian refugees living here and of those reunified with
their families' (DA, Almajid 2019)

(319) prepositional construction, 2-syllable PR, 12-syllable PM:
det   traditionell-e   firepartisystem   i   Danmark
DEF   traditional-WK   four.party.system   in   Denmark
'the traditional four-party system in Denmark' (DA, Lindhagen 2018)

Table 61 gives descriptive statistics for the lengths of PR and PM phrases in both constructions in Swedish. The results of chi-square tests of independence indicate that there is a statistically significant association between the possessive construction and both PR and PM lengths. As regards the s-genitive construction, the PM phrase is evidently longer than the PR phrase, as indicated by both the mean and the median. As regards the prepositional construction, the PR phrase is on average nearly one syllable longer than the PM phrase. These results confirm the hypothesis that the phrase that occurs second in a possessive construction tends to be longer. Furthermore, the differences between the PR and PM phrases in both constructions are more pronounced in Swedish than in Danish.

Table 61. Length of PR and PM phrases in Swedish

Swedish	s-gen		PP	
Statistics	PR LENGTH	PM LENGTH	PR LENGTH	PM LENGTH
N	684	684	572	572
Mean	**3.69**	**4.37**	**5.03**	**4.17**
Median	3.00	4.00	4.00	4.00
Std. Deviation	1.988	2.833	2.997	2.260
Range	20	24	19	15
Minimum	1	1	1	1
Maximum	21	25	20	16

PR length: χ^2 = 102.819, *df* = 17, *p* < 0.001; PM length: χ^2 = 52.532, *df* = 16, *p* < 0.001

Figures 37 and 38 show boxplots for the PR and PM phrases in Swedish. The graphs visualize the range as well as the extreme outliers in the data. We observe that, while the range for PR phrases in both constructions is similar, due to the outliers (Figure 37), the possessors in the PP construction are longer and include more instances of higher values (as indicated by the longer box of central values and the inner fences). As regards the PM phrases (Figure 38), they are on average longer and include more instances of higher values in the s-genitive construction than in the PP construction.
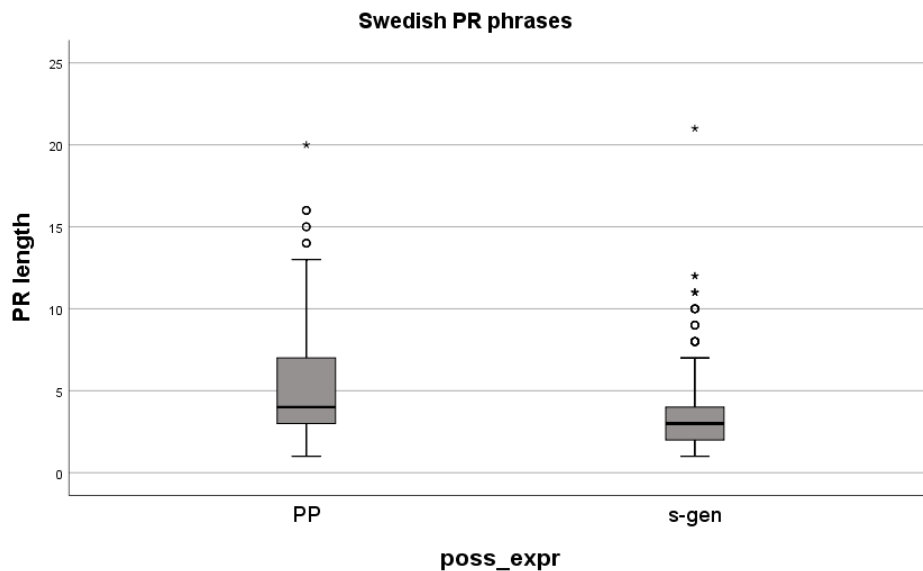
Figure 37. Possessor length in Swedish
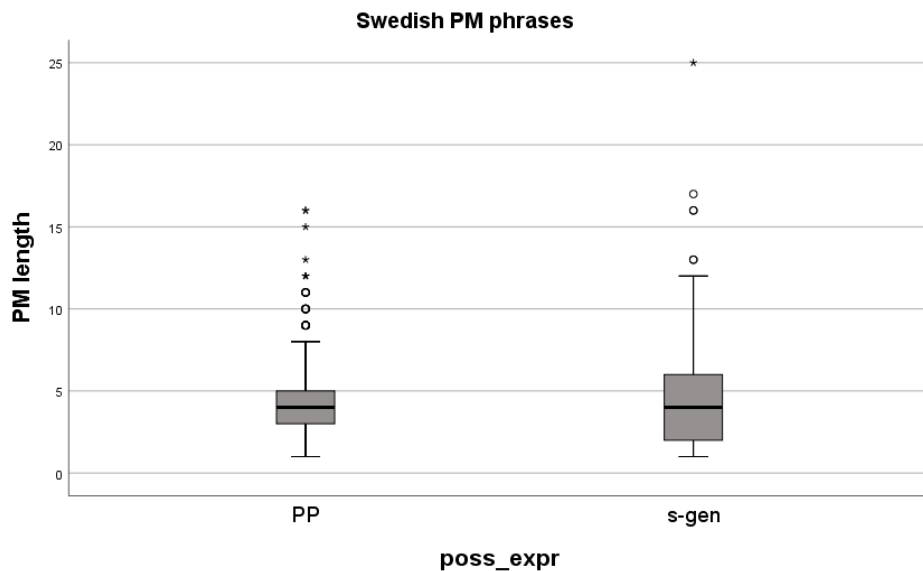
Figure 38. Possessum length in Swedish

Some of the longest phrases found in the Swedish dataset are exemplified below (320–323), including the most extreme cases.

(320) s-genitive, 7-syllable PR, 25-syllable PM:

I	*den*	*står*	*bland*	*annat*	*om*	*den*	*digital-a*	*miljö-n-s*
in	3SG.C	stands	among	other	about	DEF	digital-WK	environment-DEF-S

betydelse	*för*	**10-17-åring-ar-s**	*sätt*	*att*	*utforska*	*och*
importance	for	10-17-year.old-PL-S	way	to	explore	and

utforma	**sin**	**individuell-a**	**och**	**kollektiv-a**	**identitet.**
shape	REFL.POSS	individual-WK	and	collective-WK	identity

'It states, among other things, the importance of the digital environment for 10-17-year-olds' way of exploring and shaping their individual and collective identity.' (SV, Rönnberg 2017a)

(321) s-genitive, 21-syllable PR, 1-syllable PM:

Närmare	*bestämt*	**den**	**norsk-e**	**professor-n**	**i**
more	specifically	DEF	Norwegian-WK	professor-DEF	in

musikvetenskap	**och**	**barnkultur**	**Jon-Roar**	**Bjørkvold-s**
musicology	and	children.culture	Jon-Roar	Bjørkvold-S

bok	*från*	*1989.*
book	from	1989

'More specifically, the Norwegian professor of musicology and children's culture Jon-Roar Bjørkvold's book from 1989.' (SV, Rönnberg 2017c)

(322) prepositional construction, 20-syllable PR, 2-syllable PM:

Med	*inslag*	*av*	*både*	*spel,*	*humor*	*och*
with	element.PL	of	both	game.PL	humour	and

situation-er	*hämtade*	*från*	*verklig-a*	*liv-et [...]*
situation-PL	taken	from	real-WK	life-DEF

'With elements of both games, humour and situations taken from real life [...].' (SV, Kickstarta läsåret 2017)

(323) prepositional construction, 7-syllable PR, 16-syllable PM:

Brittiska	*Tories*	*lämnade*	**den**	**stor-a**	**kristdemokartisk-a/**
British	Tories	left	DEF	large-WK	Christian.democratic-WK/

konservativ-a	**grupp-en**	**i**	**Europaparlament-et**	**och**
conservative-WK	group-DEF	in	European.Parliament-DEF	and

bildade	*en*	*egen*	*grupp.*
formed	INDF	own	group

'The British Tories left the large Christian Democratic/Conservative group in the European Parliament and formed their own group.' (SV, Andersson 2014)

In conclusion, examining the factor of length in isolation, we observe that in both the s-genitive and the prepositional construction the phrases that occur second are on average longer than the phrases that precede them. From the point of view of the efficacy of processing, and thus the economy of language, the s-genitive will be favoured if the PM phrase is longer than the PR phrase, and the prepositional construction will be favoured in the opposite case. It is important to note, however, that the differences between lengths of PR and PM phrases are not very large — on average, they amount to less than one syllable in each

case. I also find examples of extremely long phrases that occur second in a possessive construction (and thus follow the constraint of End Weight, as in example (322)), but at the same time there are instances of extremely long phrases that occur first in a possessive construction (like in example (321)). Even though there are statistically significant differences in the lengths of PR and PM phrases, it is by no means a rule that is always followed. Further, in operationalizing length for the multivariate study presented in section 6.4, I treat length of PR and length of PM as two separate variables, rather than one variable indicating a ratio between the lengths of PR and PM. For this reason, it is the length of PR that will possibly be of import in the multivariate analysis rather than the length of PM, since the differences in the latter factor are less pronounced between the two constructions. In the next section I explore in detail the semantic notions of possession.

6.3.5 *Notions of possession*
In sections 1.2 and 4.1.4 I presented three general research hypotheses for this dissertation. Hypothesis C is concerned with semantic notions of possession; it states that:

> C.   In historical texts, the adnominal possessive constructions are used more frequently for expressions of prototypical notions of possession than for expressions of more marginal notions. Thus, the use of possessives advances from prototype to periphery.

Prototypical relations include here OWNERSHIP, KINSHIP and PART–WHOLE relations (see section 2.1). The results of the diachronic study presented in Chapter 5 confirm Hypothesis C in that the use of attributive possessives with the three prototypical notions declines over the time periods studied (see section 5.4.2). At the same time, more peripheral notions of possession, such as ABSTRACT and ATTRIBUTIVE possession, are already relatively frequently expressed with attributive possessives in the historical texts. In Swedish in Period III (after 1450) these relations are already more frequent than the prototypical ones (they constitute ca. 45% of all instances of possessive NPs); in Danish the same tendency occurs in Period IV (after 1550). The general results discussed at the beginning of this chapter (section 6.2.2, Tables 41 and 42) reveal that, overall, prototypical notions of possession are all relatively frequently expressed in Danish texts (PART–WHOLE: 11.9%, KINSHIP: 6.5%, OWNERSHIP: 8.8% of all possessives). In Swedish, however, while PART–WHOLE relations are frequent (13.6% of all possessives), the remaining two prototypical relations are quite marginal (KINSHIP: 2.7%, OWNERSHIP: 3.2%). These results include all instances of pronominal constructions found in the Danish and Swedish corpora. In comparison with the diachronic results from Chapter 5, the frequency of use of attributive possessive constructions with the prototypical notions of possession is seen to have declined even further, with the exception of the PART–WHOLE relation, which in contemporary texts appears more frequently. These changes in frequencies are partly due to different text genres and registers. OWNERSHIP and KINSHIP relations occur predominantly in legal texts in the diachronic corpus, and this genre does not have an equivalent in the contemporary corpus.

    In this section, since OWNERSHIP and CONTROL relations were largely excluded from the study as not interchangeable between the s-genitive and PPs, I focus on the remaining

semantic notions in order to explore whether there is any association between these and the choice of possessive construction. Table 62 illustrates the distribution of the semantic notions of possession across the s-genitive and the prepositional construction in Danish.

Table 62. Semantic notions of possession in Danish

Semantic notions	Count & percentage	s-gen	PP	Total
KINSHIP	Count	21	2	23
	% within Notions	91.3%	8.7%	100.0%
	% within Possessive construction	2.4%	0.8%	2.0%
PART–WHOLE	Count	**82**	**72**	154
	% within Notions	**53.2%**	**46.8%**	100.0%
	% within Possessive construction	**9.2%**	**27.6%**	13.4%
SOCIAL ROLE	Count	35	9	44
	% within Notions	79.5%	20.5%	100.0%
	% within Possessive construction	3.9%	3.4%	3.8%
AUTHOR	Count	**64**	**6**	70
	% within Notions	**91.4%**	**8.6%**	100.0%
	% within Possessive construction	**7.2%**	**2.3%**	6.1%
ABSTRACT	Count	244	60	304
	% within Notions	80.3%	19.7%	100.0%
	% within Possessive construction	27.5%	23.0%	26.5%
ATTRIBUTIVE	Count	198	59	257
	% within Notions	77.0%	23.0%	100.0%
	% within Possessive construction	22.3%	22.6%	22.4%
LOCATIVE	Count	**122**	**48**	170
	% within Notions	**71.8%**	**28.2%**	100.0%
	% within Possessive construction	**13.7%**	**18.4%**	14.8%
TEMPORAL	Count	**101**	**4**	105
	% within Notions	**96.2%**	**3.8%**	100.0%
	% within Possessive construction	**11.4%**	**1.5%**	9.1%
OWNERSHIP	Count	10	1	11
	% within Notions	90.9%	9.1%	100.0%
	% within Possessive construction	1.1%	0.4%	1.0%
CONTROL	Count	11	0	11
	% within Notions	100.0%	0.0%	100.0%
	% within Possessive construction	1.2%	0.0%	1.0%
Total	Count	888	261	1,149
	% within Notions	77.3%	22.7%	100.0%
	% within Possessive construction	100.0%	100.0%	100.0%

$\chi^2 = 91.637$, $df = 9$, $p < 0.001$

In examining the total values, we observe that some semantic notions are not represented by many examples, such as KINSHIP, SOCIAL ROLE and the aforementioned OWNERSHIP and CONTROL. These will thus be disregarded in the discussion, as it is impossible to draw any conclusions based on such low frequencies. The most common notions expressed through possessives are ABSTRACT and ATTRIBUTIVE relations, followed by LOCATIVE and PART–WHOLE possession. The chi-square test of independence returns a very low *p*-value, indicating that there is a significant association between the notions of possession and the construction selected. The relevant results, namely those that are significantly different from the average and thus illustrate the association, are in bold. The PART–WHOLE relationship is

represented in near equal proportions by the s-genitive and the PP construction, which is a high frequency for PPs considering that the average ratio of possessives is 77% to 23% in favour of the s-genitive. In fact, out of all of the prepositional constructions in the Danish dataset, PART–WHOLE relations are the most common examples (27.6% of all PPs). Similarly, LOCATIVE possession displays some tendency to favour the prepositional construction, but not nearly as strongly as with PART–WHOLE relations. The remaining two notions, TEMPORAL and AUTHOR, are nearly exclusively expressed with the s-genitive in the Danish texts. To sum up, while PART–WHOLE and LOCATIVE possession display some, albeit not strong, tendency to occur with the PP construction in Danish, TEMPORAL and AUTHOR possession are nearly exclusively associated with the s-genitive.

Table 63. Semantic notions of possession in Swedish

Semantic notions	Count & percentage	s-gen	PP	Total
KINSHIP	Count	3	2	5
	% within Notions	60.0%	40.0%	100.0%
	% within Possessive construction	0.4%	0.3%	0.4%
PART–WHOLE	Count	**71**	**118**	189
	% within Notions	**37.6%**	**62.4%**	100.0%
	% within Possessive construction	**10.4%**	**20.6%**	15.0%
SOCIAL ROLE	Count	32	20	52
	% within Notions	61.5%	38.5%	100.0%
	% within Possessive construction	4.7%	3.5%	4.1%
AUTHOR	Count	**58**	**21**	79
	% within Notions	**73.4%**	**26.6%**	100.0%
	% within Possessive construction	**8.5%**	**3.7%**	6.3%
ABSTRACT	Count	177	126	303
	% within Notions	58.4%	41.6%	100.0%
	% within Possessive construction	25.9%	22.0%	24.1%
ATTRIBUTIVE	Count	150	114	264
	% within Notions	56.8%	43.2%	100.0%
	% within Possessive construction	21.9%	19.9%	21.0%
LOCATIVE	Count	**123**	**162**	285
	% within Notions	**43.2%**	**56.8%**	100.0%
	% within Possessive construction	**18.0%**	**28.3%**	22.7%
TEMPORAL	Count	**66**	**7**	73
	% within Notions	**90.4%**	**9.6%**	100.0%
	% within Possessive construction	**9.6%**	**1.2%**	5.8%
OWNERSHIP	Count	3	2	5
	% within Notions	60.0%	40.0%	100.0%
	% within Possessive construction	0.4%	0.3%	0.4%
CONTROL	Count	1	0	1
	% within Notions	100.0%	0.0%	100.0%
	% within Possessive construction	0.1%	0.0%	0.1%
Total	Count	684	572	1,256
	% within Notions	54.5%	45.5%	100.0%
	% within Possessive construction	100.0%	100.0%	100.0%

χ^2 = 90.433, *df* = 9, *p* < 0.001

Table 63 illustrates the distribution of the semantic notions of possession across the s-genitive and the prepositional construction in Swedish. The total values are similar to those

in Danish. In the Swedish dataset, ABSTRACT, LOCATIVE and ATTRIBUTIVE possession are the most frequent, followed closely by PART–WHOLE relationships.

The chi-square test of independence was performed to check whether there is a significant association between semantic notions and possessive constructions in Swedish. The low *p*-value indicates that such an association does occur; the relevant results demonstrating this association are in bold. PART–WHOLE and LOCATIVE possession are strongly associated with the prepositional construction; this correlation is also much more pronounced than in Danish. TEMPORAL and AUTHOR possession, on the other hand, are strongly associated with the s-genitive construction. The results for both languages are thus very similar, although in Swedish texts the PP construction is more obviously preferred for certain notions than in Danish texts, which overall do not include many examples of possessive prepositional phrases.

s-gen: χ^2 = 150.350, *df* = 18, *p* < 0.001; PP: χ^2 = 53.719, *df* = 16, *p* < 0.001
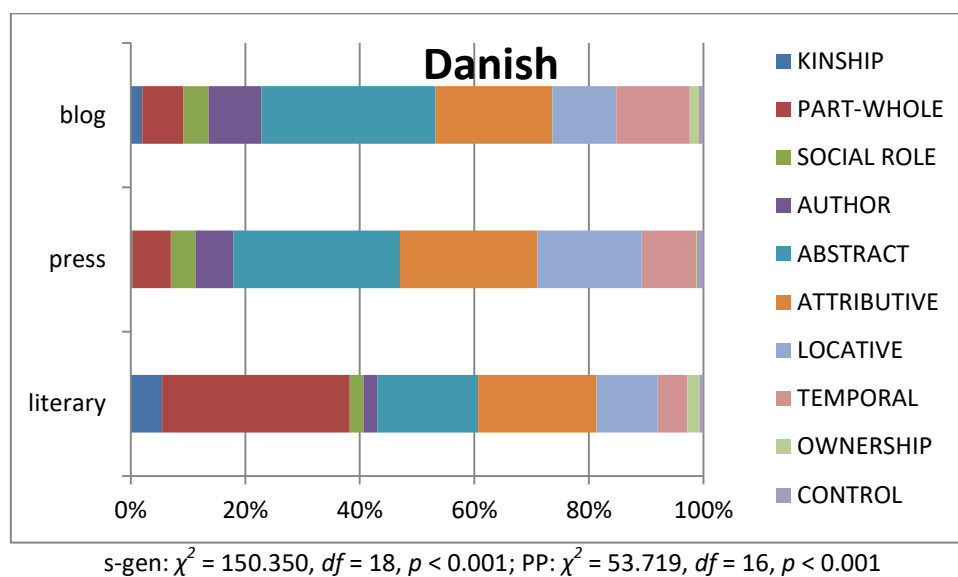
Figure 39. Relative frequency of possessive notions across text registers in Danish

s-gen: χ^2 = 78.109, *df* = 18, *p* < 0.001; PP: χ^2 = 24.605, *df* = 16, *p* = 0.077
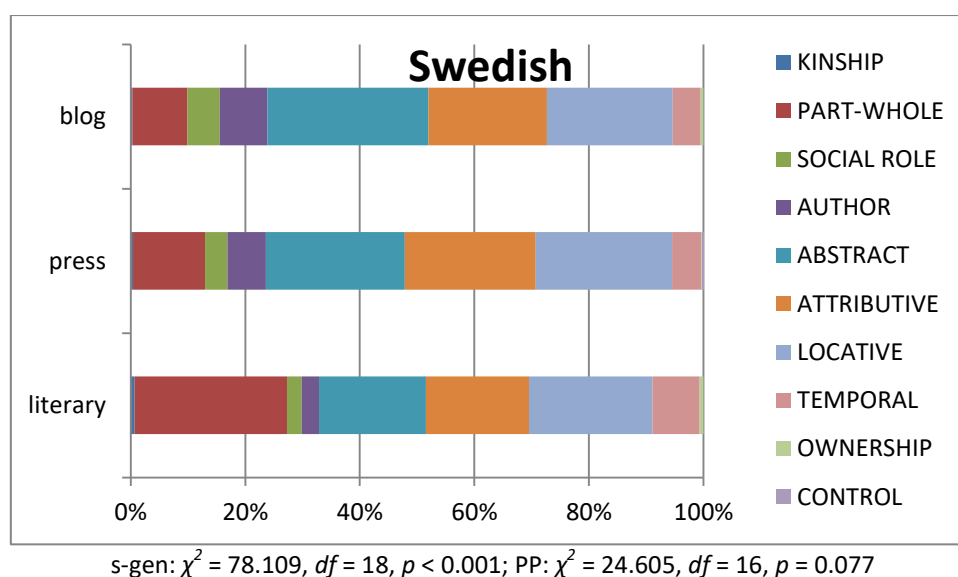
Figure 40. Relative frequency of possessive notions across text registers in Swedish

Further, it is worthwhile to explore the distribution of particular notions of possession across the three registers of corpus texts (see Figures 39 and 40). In these figures I do not differentiate between the two constructions. Overall, the chi-square test of independence indicates that there is an association between notions of possession and register in all cases, except for the prepositional construction in Swedish. The significant association in both languages is based on the different distribution in literary texts, as opposed to press and blog texts, which do not display any differences. In literary texts in both Danish and Swedish, the PART–WHOLE relation is much more frequent than in the remaining two registers, at the cost of ABSTRACT possession. This difference stems from the fact that literary texts include more descriptions in which the authors refer to parts of buildings, objects and cities (see examples (324) and (325)).

(324)   *Anders*   *åbnede*   **lokal-et-s**   **enest-e**   **lille**   **vindue**
        Anders   opened   room-DEF-S   only-WK   small.WK   window

        ud   *imod*   *skolegård-en*
        out   towards   schoolyard-DEF
        'Anders opened the room's only small window facing the schoolyard.' (DA, Henriksen 2019)

(325)   *Genom*   **den**   **ung-a**   **ek-en-s**   **grenverk**   *ser*   *hon*
        through   DEF   young-WK   oak-DEF-S   branch.PL   sees   3SG.F

        hur   *Johanna [...]*
        how   Johanna
        'Through the young oak's branches she sees how Johanna [...].' (SV, Eriksson 2014)

Interestingly, there are very few examples of human PR referents and their body parts. There are no examples in either language of PART–WHOLE relations in which body parts are referred to with a prepositional construction, and only very few examples with the s-genitive. Such examples occur in a PP construction with pronouns occasionally throughout the corpus, as in example (326), but not with proper names or common nouns.

(326)   *hun*   *har*   *vænnet*   *sig*   *til*   *lyd-en*   *af*   *når*   *det*
        3SG.F   has   accustomed   REFL   to   sound-DEF   of   when   3SG.N

        kommer   *ud*   *af*   **mund-en**   **på**   **hende** *på*   *det*
        comes   out   of   mouth-DEF   on   3SG.F on   DEF

        fremmede   *sprog*
        foreign.WK   language
        'she has become accustomed to the sound of when it comes out of her mouth [lit. the mouth on her] in the foreign language' (DA, Preisler 2014)

The conclusion is that the s-genitive construction denoting a body part is not that readily interchangeable with a prepositional construction unless it involves a pronoun, at least in the

present dataset (see also section 3.1.2, where I give examples of such constructions). Examples such as (326) are not included in the dataset, since the PP construction is interchangeable with a pronominal construction rather than the s-genitive.

In sum, there are not many differences between the registers of texts with regard to the notions of possession. The only difference lies in the descriptive nature of literary texts, which provide more instances of PART–WHOLE relationships at the cost of ABSTRACT possession.

Lastly, I will explore the prepositions used in PP constructions with regard to the notions they express. In Chapter 3 (section 3.1.2) I discussed the previous research on the possessive prepositional construction in Danish and Swedish, giving examples showing which prepositions are used and how frequently they occur in possessives. Norde (1997: 52) quoting data from Pitkänen (1979) states that the most frequently used prepositions in Swedish possessive PPs are *av* 'of', *för* 'for', *på* 'on', *i* 'in' and *till* 'to', and that these constitute around 95% of all prepositions used in PPs. Figures 41 and 42 illustrate the frequencies of prepositions used in the Danish and Swedish corpora of texts in the dataset. The five most frequently used prepositions are the same in both languages; they coincide with Pitkänen's findings except for the preposition *till/til* 'to', which is less frequent than the preposition *från/fra* 'from'. The five most common prepositions account for 92.7% of all PPs in Danish and 85.3% in Swedish. There is thus a little more variation than was claimed in previous studies, especially in Swedish. In both figures, not featured in the legend are the least frequently used prepositions, namely *med* 'with', *ved* 'by', *om* 'about' in Danish (each constituting 0.4%) and *om* 'about', *mellan* 'between', *efter* 'after', *åt* 'at/towards', *med* 'with', *runt* 'round', *under* 'under' in Swedish (they constitute between 0.2% and 1%, as can be seen in Figure 42).
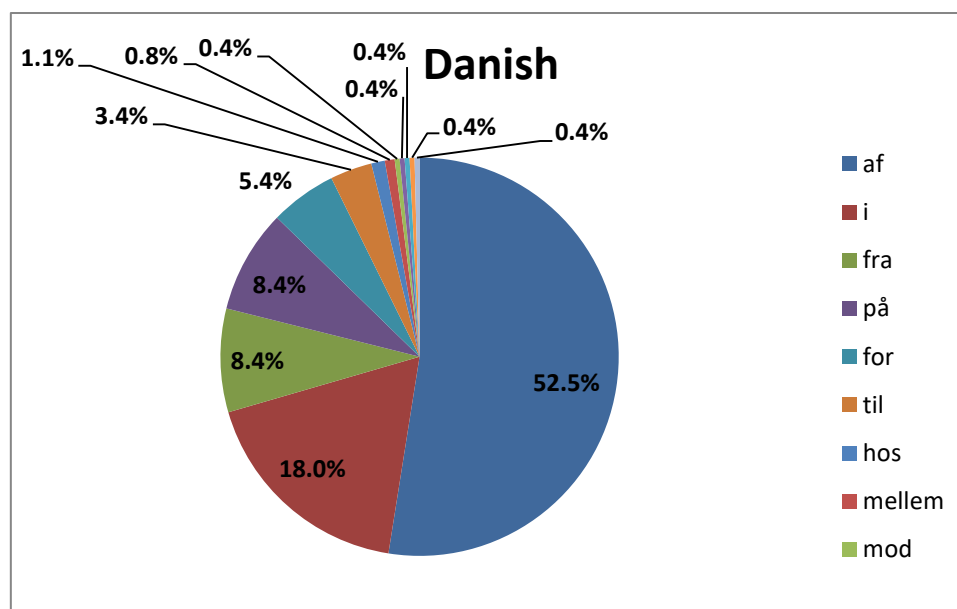
Figure 41. Frequency of prepositions used in the PP construction in Danish
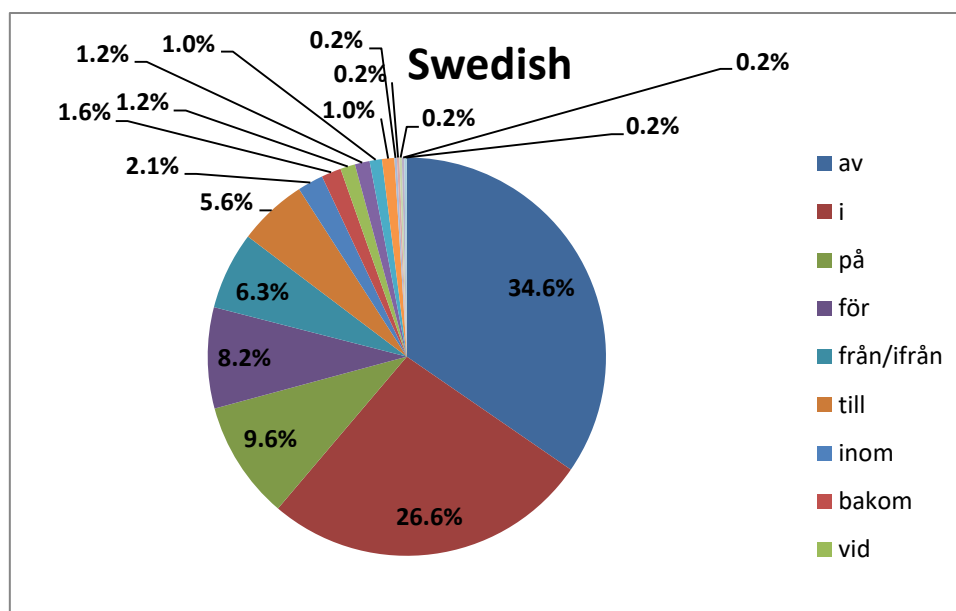
Figure 42. Frequency of prepositions used in the PP construction in Swedish

In both languages *av/af* 'of' is the most commonly used preposition; it is more frequent in Danish, where it seems to have taken over some domains which are expressed through different prepositions in Swedish. For instance, KINSHIP and SOCIAL ROLE relations are quite regularly expressed with the preposition *till* 'to' in Swedish (see example (327)), but with both *af* 'of' and *til* 'to' in Danish (see example (328)). Based on the frequency of the Danish *af*, there is a basis to claim that it is grammaticalized as a possessive preposition to a greater extent than in Swedish. This can be seen as an influence from the English of-genitive. On the other hand, there are many more examples of possessive PPs in the Swedish corpus than in the Danish one, and thus the conclusion just drawn is a tentative one; further research is required to confirm the status of *af* in Danish.

(327) *man   eventuellt   kan   bli   förälder   till   ett   gmo-barn*
one   possibly   can   become   parent   to   INDF   GMO-child
'one could possibly become a parent of a GMO child' (SV, Snaprud 2016)

(328) *gruppe oprettet   af   familie   og   venn-er   af   Kamilla*
group created   of   family   and   friend-PL   of   Kamilla
'group created by family and friends of Kamilla' (DA, Klastrup 2014)

Figures 43 and 44 illustrate the distribution of the six most frequently used prepositions across the semantic notions of possession (they constitute 96.1% of all prepositions used in Danish and 90.9% in Swedish). In the figures the notions of OWNERSHIP, CONTROL and TEMPORAL possession are excluded, since there are very few examples of PPs expressing these notions in the dataset.
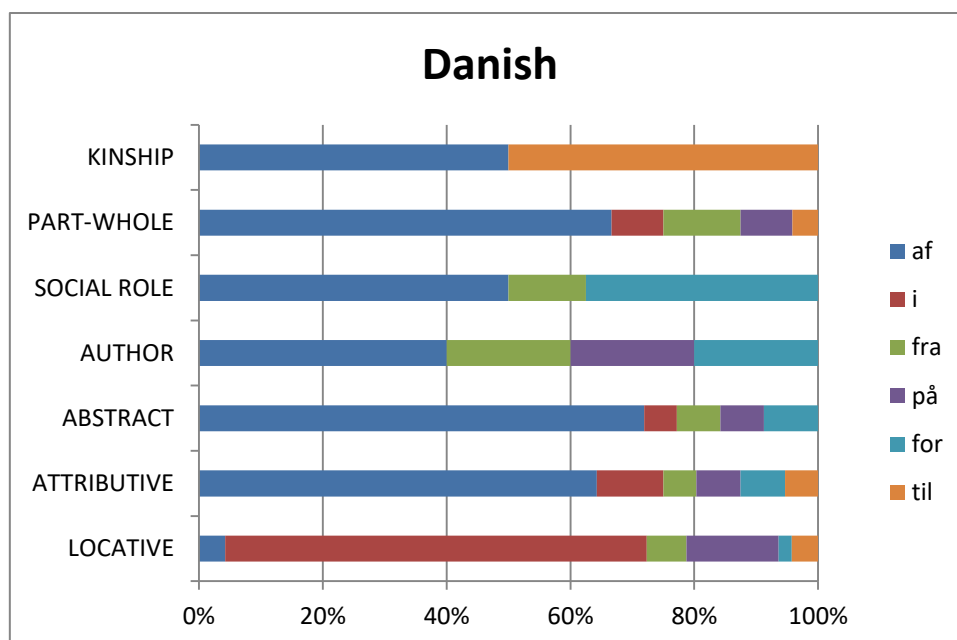
Figure 43. Prepositions by notions of possession in Danish

In Danish, the preposition *af* 'of' is used in at least 50% of cases in most of the semantic notions of possession. The only exceptions are AUTHOR and LOCATIVE possession. The latter is most frequently expressed with the preposition *i* 'in' or *på* 'on' — both are spatial prepositions indicating 'location in/on/at', in contrast to *af* 'of' and *fra* 'from', which indicate 'direction from' (Hammarberg & Koptjevskaja-Tamm 2003: 140).
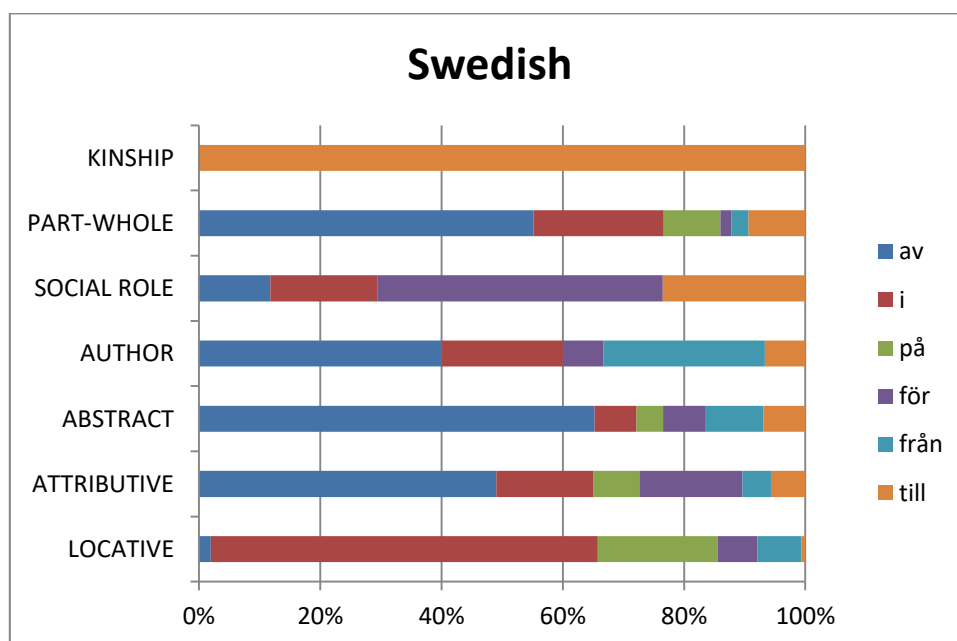
Figure 44. Prepositions by notions of possession in Swedish

In Swedish the distribution is not as straightforward. *Av* 'of' dominates in only three categories: PART–WHOLE, ABSTRACT and ATTRIBUTIVE. KINSHIP, as already mentioned, is exclusively expressed with the preposition *till* 'to' (although note that there are only two examples of this category in the corpus). SOCIAL ROLE is expressed by four different

prepositions, depending on the context and the relation expressed. While some interpersonal relationships are often expressed with *till* 'to', just like KINSHIP (see example (329)), others are expressed with *för* 'for' or *i* 'in', indicating, for example, a person's place in an organization (see example (330)).

(329)   *rådgivare*   *till*   *den*   *regional-a*   *president-en*
       adviser   to   DEF   regional-WK   president-DEF
       'adviser to the regional president' (SV, Lindqvist 2017)

(330)   *ledning-en*   *för*   *det*   *kommunal-a*   *bolag-et*
       management-DEF   for   DEF   municipal-WK company-DEF
       'the management of the municipal company' (SV, Pettersson 2017b)

Similarly to Danish, LOCATIVE possession is most commonly expressed with the prepositions *i* 'in' or *på* 'on', since these are the most prototypically spatial prepositions. It is thus undisputed that the semantic notions of possession are to some extent reflected in the prepositions used — especially in the case of LOCATIVE possession. It has to be noted, however, that within the same semantic notion some semantic dimensions might be more prominent than others depending on the discourse context, and thus the relation expressed by a preposition is not always straightforward. For instance, in the PART–WHOLE relationship different prepositions might be used to give prominence either to partitive (example (331)) or locative meaning (example (332)). The latter example is classified as a PART–WHOLE relationship since any necessary parts of buildings and objects (e.g. *the building's window*, *the table's legs*) are annotated as PART–WHOLE in the present project; this is, however, an arbitrary decision, as many instances of this semantic notion include the dimension of location.

(331)   *i*   **södr-a**   **del-ar-na**   **av**   **land-et**
       in   southern-PL   part-PL-DEF.PL   of   country-DEF
       'in the southern parts of the country' (SV, Johansson 2017)

(332)   *Utanför*   **det**   **gallerförsedd-a**   **fönstr-et**   **i**   **besöksrumm-et**
       outside   DEF   barred-WK   window-DEF in   visitor.room-DEF
       'outside the barred window of the visitor room' (SV, Cantwell 2017)

In general, as discussed in Chapter 2 (see section 2.2.1 in particular), the aspect of location is conspicuously connected to the notion of possession. This is especially visible in possessive prepositional constructions that make use of spatial prepositions. An argument can be made that such constructions are not possessive at all, but rather just locative. I argue that even though a certain construct can be reduced to the conceptual schema of location (e.g. *the streets of Stockholm*), it does not follow that it cannot have a broader interpretation including that of possession. And lastly, it has to be noted that the fact that there is no one grammaticalized possessive preposition in Danish and Swedish has its consequences for the type of possessive relations that can be expressed with prepositions. The underlying meaning

of location or direction is present in PPs, and thus not all notions expressed with the s-genitive are interchangeable with possessive prepositional constructions, as is the case with the notion of legal OWNERSHIP.

6.3.6 Other variables: number, countability, concreteness, register

To further explore the variation between the s-genitive and the prepositional construction in Danish and Swedish, I examine some minor factors that are not often invoked in studies on genitive variation. These variables are semantic aspects of referents, such as number, countability and concreteness, as well as one extra-linguistic factor, namely the register of the corpus text. The diachronic study presented in Chapter 5 revealed that the genitive construction favoured singular and countable possessor referents in texts from 1250–1700. It is thus worth examining whether the same tendency occurs in the contemporary s-genitive construction, even though the historical phenomenon might have been heavily influenced by the fact that the s-genitive construction was undergoing a grammaticalization process in the periods studied.

Table 64. Number in possessors in Danish

Number	Count & percentage	s-gen	PP	Total
SINGULAR	Count	683	211	894
	% within Number	76.4%	23.6%	100.0%
	% within Possessive construction	76.9%	80.8%	77.8%
PLURAL	Count	205	50	255
	% within Number	80.4%	19.6%	100.0%
	% within Possessive construction	23.1%	19.2%	22.2%
Total	Count	888	261	1,149
	% within Number	77.3%	22.7%	100.0%
	% within Possessive construction	100.0%	100.0%	100.0%

χ^2 = 1.803, *df* = 1, *p* = 0.179

Table 65. Number in possessors in Swedish

Number	Count & percentage	s-gen	PP	Total
SINGULAR	Count	563	454	1,017
	% within Number	55.4%	44.6%	100.0%
	% within Possessive construction	82.3%	79.4%	81.0%
PLURAL	Count	121	118	239
	% within Number	50.6%	49.4%	100.0%
	% within Possessive construction	17.7%	20.6%	19.0%
Total	Count	684	572	1,256
	% within Number	54.5%	45.5%	100.0%
	% within Possessive construction	100.0%	100.0%	100.0%

χ^2 = 1.747, *df* = 1, *p* = 0.186

Tables 64 and 65 illustrate the distribution of singular and plural PR referents across the two possessive constructions in Danish and Swedish. Firstly and most importantly, the chi-square tests of independence return very high *p*-values for both languages. This indicates that there is no significant association between number and possessive construction, which is clearly illustrated in the tables above. The frequencies of singular and plural PR referents do not vary from the average in any distinctive way. Secondly, the overall ratio of singular vs. plural PR referents is ca. 80% to 20% irrespective of language and possessive construction. The same overall ratio was reported for all NPs (not just possessives) found in the diachronic corpus (see section 5.3.5); it is thus an expected result. Further, it merits mentioning that number is significantly correlated with definiteness in both languages ($p < 0.001$). While very few singular referents are indefinite (4.5% in Danish and 8.5% in Swedish), plural referents are relatively often indefinite (31.4% in Danish and 53.6% in Swedish), as in example (333). This is due to the fact that singular indefinite NPs are disfavoured as possessors, especially in the s-genitive construction, as I have already demonstrated in section 6.3.2.

(333) *håndværk-et-s betydning*   *og*   **arkitekt-er-s faglig-e**
       craft-DEF-S   importance   and   architect-PL-S professional-WK

       greb *kan*   *gøre* *en*   *stor*   *forskel*   *for*   **menneske-r-s livskvalitet**
       grasp can   make   INDF big   difference   for   people-PL-S life.quality
       'the importance of the craft and architects' professional grasp can make a big difference to people's quality of life' (DA, Weirup 2016)

Table 66. Countability of possessors in Danish

Countability	Count & percentage	s-gen	PP	Total
COUNTABLE	Count	827	248	1,075
	% within Countability	76.9%	23.1%	100.0%
	% within Possessive construction	93.1%	95.0%	93.6%
MASS	Count	61	13	74
	% within Countability	82.4%	17.6%	100.0%
	% within Possessive construction	6.9%	5.0%	6.4%
Total	Count	888	261	1,149
	% within Countability	77.3%	22.7%	100.0%
	% within Possessive construction	100.0%	100.0%	100.0%

$\chi^2 = 1.194$, *df* = 1, *p* = 0.275

Table 67. Countability of possessors in Swedish

Countability	Count & percentage	s-gen	PP	Total
COUNTABLE	Count	664	542	1,206
	% within Countability	55.1%	44.9%	100.0%
	% within Possessive construction	97.1%	94.8%	96.0%
MASS	Count	20	30	50
	% within Countability	40.0%	60.0%	100.0%
	% within Possessive construction	2.9%	5.2%	4.0%

Total	Count	684	572	1,256
	% within Countability	54.5%	45.5%	100.0%
	% within Possessive construction	100.0%	100.0%	100.0%

χ^2 = 4.389, *df* = 1, *p* < 0.05

Tables 66 and 67 illustrate the distribution of countable and mass PR referents across the two possessive constructions in Danish and Swedish. In Danish, there is no significant association between countability and possessive construction, as indicated by the fact that frequencies of countable and mass referents do not vary from the average in each construction (the chi-square test gives a high *p*-value). In Swedish, on the other hand, there is an association between these two variables, albeit the *p*-value is at the margin of statistical significance (*p* < 0.05). The frequencies of countable PR referents do not vary from the average (ca. 55% in the s-genitive and 45% in the PP construction). Mass PR referents, however, display an association with the prepositional construction in Swedish (see example (334)). Mass referents are overall very infrequent in the dataset, particularly in the Swedish texts. Further studies with more mass referents would be necessary to establish whether this association holds for the prepositional construction.

(334) *betonar*   *Vikström*   **vikt-en**   *av*   *social* *kompetens*
       emphasizes   Vikström   importance-DEF   of   social competence

       och   ***situationskänslighet***.
       and   situation.sensitivity
       'Vikström emphasizes the importance of social competence and situation sensitivity.'
       (SV, Holmberg 2017b)

Further, countability is naturally highly correlated with animacy — mass referents can only be inanimate. The tendency for Swedish mass PR referents to occur in the prepositional construction is thus presumably epiphenomenal to the factor of animacy, since inanimate referents are strongly associated with the PP construction in Swedish (in a more pronounced way than in Danish).

Table 68. Concreteness of possessors in Danish

Concreteness	Count & percentage	s-gen	PP	Total
CONCRETE	Count	766	193	959
	% within Concreteness	79.9%	20.1%	100.0%
	% within Possessive construction	86.3%	73.9%	83.5%
ABSTRACT	Count	122	68	190
	% within Concreteness	64.2%	35.8%	100.0%
	% within Possessive construction	13.7%	26.1%	16.5%
Total	Count	888	261	1,149
	% within Concreteness	77.3%	22.7%	100.0%
	% within Possessive construction	100.0%	100.0%	100.0%

χ^2 = 22.165, *df* = 1, *p* < 0.001

Table 69. Concreteness of possessors in Swedish

Concreteness	Count & percentage	s-gen	PP	Total
CONCRETE	Count	596	431	1,027
	% within Concreteness	58.0%	42.0%	100.0%
	% within Possessive construction	87.1%	75.3%	81.8%
ABSTRACT	Count	88	141	229
	% within Concreteness	38.4%	61.6%	100.0%
	% within Possessive construction	12.9%	24.7%	18.2%
Total	Count	684	572	1,256
	% within Concreteness	54.5%	45.5%	100.0%
	% within Possessive construction	100.0%	100.0%	100.0%

$\chi^2 = 29.019$, $df = 1$, $p < 0.001$

Tables 68 and 69 illustrate the distribution of concrete and abstract PR referents across the s-genitive and PP constructions in Danish and Swedish. The chi-square tests of independence return very low *p*-values for both languages, thus it is reasonable to state that there is a significant association between the concreteness of the referent and the possessive construction in which it occurs. The frequencies of concrete PR referents do not differ considerably from the average for each construction, although there is a small tendency for them to occur in the s-genitive. Abstract PR referents, on the other hand, display a very distinct tendency to occur in the prepositional construction in Swedish. The same tendency is discernible in Danish, although it is not as conspicuous since the s-genitive still dominates in the abstract category. Some examples of concrete and abstract PR referents are given in (335–336) below.

(335) *et*   *klar-t*   *indtryk*   *af*   *det*   *usædvanlige*   *og*
       INDF   clear-ST   impression   of   DEF   unusual   and

       overraskende i   *eksempelvis*   **flodhest-en-s,**   **næsehorn-et-s**
       surprising   in   for example   hippopotamus-DEF-S   rhinoceros-DEF-S

       eller   **solsikke-n-s**   **proportion-er**
       or   sunflower-DEF-S   proportion-PL
       'a clear impression of the unusual and surprising in, for example, the hippopotamus', the rhinoceros' or the sunflower's proportions' (DA, Andersen 2017)

(336) *under* **tryck-et**   *av*   *detta*   *väldig-a*   *skeende*   *hade*   *den*
       under   pressure-DEF   of   DEM   huge-WK   event   had   DEF

       svensk-a   *vänsterregering-en [...]*   *bestämt*   *sig [...]*
       Swedish-WK   left.government-DEF   decided   REFL
       'under the pressure of this huge event, the Swedish left-wing government [...] had decided [...]' (SV, Ohlsson 2017)

Further, similarly to countability, concreteness is naturally correlated with the animacy of the referent ($p < 0.001$). Abstract PR referents are nearly exclusively inanimate, which again indicates that the association between concreteness and possessive construction is most likely epiphenomenal to the stronger factor of animacy. The importance of each factor discussed in this chapter will be further explored in section 6.4, in which all variables are brought together in a regression model.

Interestingly, there is also a correlation between concreteness and definiteness in both languages ($p < 0.001$). While concrete PR referents are diverse in terms of definiteness, abstract referents are in the vast majority definite, especially in Danish (79.5% of all abstract referents in Danish and 53.7% in Swedish are definite). This confirms the previously stated tendency for Danish abstract referents to be largely definite if they occur as possessors in the s-genitive (Hansen 1967: 209; see also section 5.3.2).

Table 70. Possessors across registers in Danish

Register	Count & percentage	s-gen	PP	Total
LITERARY	Count	207	83	290
	% within Register	71.4%	28.6%	100.0%
	% within Possessive construction	23.3%	31.8%	25.2%
PRESS	Count	479	130	609
	% within Register	78.7%	21.3%	100.0%
	% within Possessive construction	53.9%	49.8%	53.0%
BLOG	Count	202	48	250
	% within Register	80.8%	19.2%	100.0%
	% within Possessive construction	22.7%	18.4%	21.8%
Total	Count	888	261	1,149
	% within Register	77.3%	22.7%	100.0%
	% within Possessive construction	100.0%	100.0%	100.0%

$\chi^2 = 8.171$, $df = 2$, $p < 0.05$

Table 71. Possessors across registers in Swedish

Register	Count & percentage	s-gen	PP	Total
LITERARY	Count	183	122	305
	% within Register	60.0%	40.0%	100.0%
	% within Possessive construction	26.8%	21.3%	24.3%
PRESS	Count	292	272	564
	% within Register	51.8%	48.2%	100.0%
	% within Possessive construction	42.7%	47.6%	44.9%
BLOG	Count	209	178	387
	% within Register	54.0%	46.0%	100.0%
	% within Possessive construction	30.6%	31.1%	30.8%
Total	Count	684	572	1,256
	% within Register	54.5%	45.5%	100.0%
	% within Possessive construction	100.0%	100.0%	100.0%

$\chi^2 = 5.448$, $df = 2$, $p = 0.066$

Lastly, the factor of register is explored with regard to the distribution of the s-genitive and the prepositional construction (see Tables 70 and 71). Overall, in both languages there are more possessive constructions found in press texts than in the other two registers. The number of words in each register of the corpus was similar: ca. 25,000 words in each register in Swedish and ca. 37,000 words in Danish (see section 4.2.3). We observe, therefore, a distinct tendency for Danish and Swedish press texts to include the s-genitive and prepositional constructions more often than literary or blog texts. This is not unexpected, since authors of press texts often have to condense a lot of information into a short fragment, which in turn means that such texts specify many referents and relationships between those referents.

As the *p*-values reported below Tables 70 and 71 indicate, register is significantly associated with possessive construction only in Danish (the *p*-value is at the margin of statistical significance). The differences between the registers are not very substantial, but the prepositional construction occurs more often in literary texts than it does on average, while the s-genitive occurs more often in blog texts than it does on average. No such tendency is discernible in the Swedish dataset. The association found in the Danish texts is presumably merely circumstantial, and it is not likely to have any bearing on the selection of possessive construction in the multivariate analysis.

6.3.7 Summary

Exploring the relevant variables individually and comparing their frequencies in both constructions allows me to pinpoint the most typical possessor referents in the s-genitive and the prepositional construction in Danish and Swedish. Table 72 illustrates the most common features of possessors in both languages. Only the relevant variables, namely those that returned statistically significant associations with the given construction, are included in the table.

Table 72. Characteristics of typical possessor referents in contemporary Danish and Swedish

Variable	s-genitive	prepositional construction
ANIMACY	Animate (human)	Inanimate
DEFINITENESS	Definite or proper name	Indefinite or zero-marked
TOPICALITY	Given	New
LENGTH	Longer PM phrase	Longer PR phrase
CONCRETENESS	Concrete	Abstract

In Chapter 5 (section 5.3.6) I identified the most typical possessor referent in the genitive construction in the historical Danish and Swedish texts. Comparing the present-day texts, the characteristics of the genitive construction have not changed significantly. Already in the period 1250–1700 possessors in the genitive were mostly animate (or more specifically, human), definite or proper names, and given. The prepositional construction, which could not

be studied in the historical texts due to its very low frequency, is in diametric opposition to the s-genitive in the contemporary texts. It is important to note, however, that the characteristics presented in Table 72 are the features most frequently found, not prerequisites for the construction to occur. Note also that the factor of concreteness must result from the factors of animacy and definiteness — animate and proper name referents are always concrete, while abstract referents can only be inanimate. This factor is thus epiphenomenal to the other, stronger predictor factors in the dataset.

Further, even though I do not differentiate between Danish and Swedish in the table above, there are some minor differences regarding the associations between the variables and the possessive constructions discussed in this chapter. Most notably, nearly all associations found — for instance, that between human referents and the s-genitive, on the one hand, and inanimate referents and the prepositional construction, on the other — are more pronounced in Swedish than in Danish. This is due to the fact that the Danish corpus includes fewer instances of the prepositional construction than instances of the s-genitive; the frequency ratio is ca. 23% to 77% respectively. For that reason, in comparing the two constructions with respect to certain factors, the prepositional construction is rarely in the majority, unlike in Swedish, where the ratio of PPs to s-genitives is ca. 45% to 55%. In fact, the frequency of prepositional constructions is the greatest difference between the two languages studied here, and it is the source of the other minor discrepancies. Taking into consideration that the same registers of texts were selected for both Danish and Swedish corpora, the difference in frequency of the possessive prepositional construction cannot be incidental. Of the two attributive possessive constructions studied in this chapter, Danish literary, press and blog texts clearly favour the s-genitive.

In the next section, all of the variables discussed so far are brought together in statistical models that will illustrate which factors are decisive in the selection of the s-genitive as opposed to the prepositional construction.

6.4 Variation between the s-genitive and the prepositional construction: statistical models

To determine which factors have the greatest impact on the selection of the possessive construction in Danish and Swedish dataset two statistical models are presented. Firstly, binary logistic regression is discussed. This tool produces a model that predicts the probability of a response occurring given the independent variables. Secondly, I present Classification and Regression Tree Analysis (CRT), which is a tool very similar to logistic regression. The merit of CRT, however, lies in the fact that it displays the data visually, so that the distribution of the data with regard to different variables is exhibited in a reader-friendly form. See section 4.4 for an introduction to these statistical tools.

6.4.1 Binary logistic regression
To examine how great an impact the combined conditioning factors discussed so far have on the selection of the s-genitive as opposed to the prepositional construction, the results of a binary logistic regression are reported here. The dependent variable (in other words, the response variable) is the presence of the s-genitive. The values reported are the following: the

B coefficient (to be understood as a rate of change), standard error, significance (the *p*-value) and odds ratios. Odds ratios are of the greatest import here, as they measure the effect size of each variable and specify the direction of the effect, while at the same time controlling for all the other factors. In simpler terms, the odds tell us how great is the probability of the s-genitive occurring, given the independent variable. If the odds are greater than 1, the given category is associated with a higher probability of the s-genitive occurring. If the odds are lower than 1, the given category is associated with a higher probability of the prepositional construction occurring. It is important to note that the odds are always calculated relative to another value or category, which is why in the reported results nearly every independent variable or category within that variable is presented as opposed to another category (e.g. human vs. inanimate).

6.4.1.1 Danish

The results of the binary logistic regression model for the Danish dataset are given in Table 73. The first column in the table lists all of the independent variables included in the model. All of the variables except for length of phrase (PR_LENGTH and PM_LENGTH) are categorical rather than continuous. For that reason, in the second column the categories that are being compared with each other are listed. In the first row for each categorical variable that has more than two categories, the significance level of the entire category is reported; this indicates whether there is an association between the independent variable and the response (occurrence of the s-genitive). Further, for each categorical variable one category is selected as a baseline category, with which the other categories within the same variable are compared. For example, within PR_ANIMACY, *inanimate* is the baseline category, so all the remaining categories are compared with *inanimate*. Since the baseline categories function as a reference, their odds ratios are always equal to 0, and thus they are not listed in the table. As mentioned, length of phrase is the only continuous variable in the dataset — it is measured as a number of syllables. Further, for reasons of efficiency, the results for two variables have been abbreviated, namely PM_ANIMACY and SEMANTIC NOTIONS. Both have many subcategories, and as the table indicates PM_ANIMACY is not statistically significant (nor are any of its categories), while within SEMANTIC NOTIONS only one category is significant, and thus only these results are reported. Results that are statistically significant (i.e. for which the *p*-value is lower than 0.05) are in bold.

Table 73. Binary logistic regression model for the Danish s-genitive vs. PPs

DANISH	Independent variables	Estimate (B coefficient)	Std. error	Significance	Odds ratios
	Intercept	1.338	1.109	0.228	3.811
PR_ANIMACY		–	–	**0.000**	–
	human vs. inanimate	**1.580**	**0.295**	**0.000**	**4.856**
	animal vs. inanimate	2.065	1.076	0.055	7.883
	collective vs. inanimate	**0.809**	**0.375**	**0.031**	**2.245**
	spatial vs. inanimate	**-1.002**	**0.359**	**0.005**	**0.367**
	temporal vs. inanimate	-1.090	0.931	0.242	0.336
PM_ANIMACY		–	–	0.991	–
PR_DEFINITENESS		–	–	**0.000**	–
	proper name vs. indefinite	**1.350**	**0.367**	**0.000**	**3.856**
	definite vs. indefinite	**1.723**	**0.300**	**0.000**	**5.603**
	possessive vs. indefinite	0.827	0.604	0.171	2.285
	zero-marked vs. indefinite	-0.334	0.497	0.502	0.716
PR_TOPICALITY	**given** vs. new	**1.042**	**0.200**	**0.000**	**2.836**
PM_TOPICALITY	**given** vs. new	**-0.969**	**0.236**	**0.000**	**0.379**
PR_LENGTH		-0.059	0.082	0.476	0.943
PM_LENGTH		0.080	0.073	0.276	1.083
PR_LENGTH BY PM_LENGTH		-0.022	0.016	0.149	0.978
SEMANTIC NOTIONS		–	–	**0.000**	–
	temporal vs. kinship	**3.251**	**1.390**	**0.019**	**25.817**
NUMBER	**singular** vs. plural	**-0.635**	**0.264**	**0.016**	**0.530**
COUNTABILITY	**countable** vs. mass	**-1.260**	**0.391**	**0.001**	**0.284**
CONCRETENESS	**concrete** vs. abstract	**0.507**	**0.257**	**0.048**	**1.660**
REGISTER		–	–	0.097	–
	literary vs. blog	-0.372	0.270	0.169	0.689
	press vs. blog	0.126	0.234	0.591	1.134

Animacy

In comparison with inanimate PR referents, human referents are 4.8 times more likely to occur in the s-genitive construction rather than in the prepositional construction, as indicated by the odds ratios. Similarly, collective PR referents, in comparison with inanimate referents, are 2.2 times more likely to occur with the s-genitive rather than PPs. Spatial referents, on the other hand, display a negative correlation with the s-genitive; to be exact, a spatial PR referent is 63.3% less likely than an inanimate referent to occur with the s-genitive rather than with a PP. The results for animal and temporal PR referents are not statistically significant. Further, the animacy of the possessum referent has no significant impact on the selection of the possessive construction in the Danish dataset.

Definiteness

The baseline category within this variable is indefinite. In comparison with this category, proper name PR referents are 3.8 times more likely to occur with the s-genitive rather than with prepositional phrases, while definite referents are 5.6 times more likely to occur with the s-genitive. The remaining two categories (possessive and zero-marked referents) do not significantly contribute to the model. As previously mentioned, the definiteness of the possessum phrase cannot be compared across the two possessive constructions studied here,

as the PM referent in the s-genitive construction is never marked for definiteness (see section 6.3.2).

Topicality

New referents constitute the baseline category within this variable. As regards PR referents, the given category is positively correlated with the s-genitive — given referents are 2.8 times more likely to take the s-genitive than new PR referents. The converse correlation applies to PM referents — given PM referents are less likely (by 62.1%) than new referents to occur in the s-genitive. Thus, since the order of the referents is reversed in the two constructions (s-genitive: [PR-*s* PM] vs. prepositional construction [PM *prep* PR]), the effect of topicality is very significant, as the s-genitive construction commonly includes a given PR and a new PM, while the PP construction includes a new PR and a given PM. This confirms the general tendency for given referents to occur before new referents in possessive constructions.

Length

Three variables connected to length are included in the model, namely the lengths of the possessor and possessum phrases and an additional interaction term PR_LENGTH BY PM_LENGTH. The latter variable will reveal whether there is any interaction effect between the lengths of PR and PM. An interaction effect occurs when the effect of one variable depends on the value of another variable. If this interaction term were statistically significant in the present dataset, it would mean that the effect of PR_LENGTH on the selection of the s-genitive changed as the values of PM_LENGTH changed. For example, the effect on s-genitive selection could potentially be greater if the interaction between PR and PM lengths were negative, namely as the length of the PR decreases, the length of the PM increases. As Table 73 illustrates, however, this interaction term, as well as the length of both phrases, are not statistically significant in the Danish dataset. Length of phrase does not influence the selection of the s-genitive in any significant way in Danish.

Semantic notions

Overall, the category of semantic notions significantly influences the outcome of the model. The baseline category automatically selected by the model is the KINSHIP relationship. However, as we saw in Table 62 in section 6.3.5, it is not the best suited as a reference category because it is very infrequent in the dataset. In comparison with KINSHIP, the only significant notion within this variable is TEMPORAL, and we observe a very strong effect on the selection of the s-genitive: TEMPORAL possession is over 25 times more likely than the KINSHIP relation to take the s-genitive rather than the prepositional construction. Out of 105 examples of the TEMPORAL notion, over 96% occur with the s-genitive (see Table 62 in section 6.3.5). The effect of TEMPORAL possession is thus unusually large in the regression model, but this does not necessarily mean that it is the most important or influential variable overall. In fact, it only indicates that in comparison with KINSHIP (which as I have stated is not the best reference category) the effect of TEMPORAL is very strong, but in comparison with other categories the conclusion would be different. With variables that include so many categories as semantic notions, the selected reference category will thus greatly change the odds ratios. To sum up, the most important information is that the variable as a whole is

statistically significant. The Classification Tree Analysis presented in section 6.4.2 will reveal more about the relative importance of the semantic notions.

Other variables
The remaining variables are number, countability, concreteness, and register. The first three factors are found to be statistically significant and, interestingly, number and countability are negatively correlated with the selection of the s-genitive. This means that singular PR referents in comparison with plural PR referents are more likely to occur in the prepositional construction rather than the s-genitive. The same holds for countable referents in comparison with mass referents. As I indicated in section 6.3.6, number and countability studied independently of other variables are not significantly associated with the selection of a possessive construction. It can be observed in Tables 64 and 66, however, that plural referents and mass referents occur with the s-genitive slightly more frequently than their counterparts in Danish. The logistic regression model detects this small difference. As regards concreteness, concrete PR referents are ca. 1.6 times more likely to occur with the s-genitive than abstract PR referents, a tendency that was also clearly discernible in Table 68 (section 6.3.6). Register, on the other hand, has no significant influence on the selection of the s-genitive in Danish.

Correlations between independent variables
So far, the logistic regression model has provided information about the effect size of each variable, but there is no information yet about the actual independency of these variables. In other words, we want to examine whether given factors have an effect on the selection of the s-genitive that is independent of other factors, or whether some of them are correlated to such an extent that their effects depend on each other. For instance, it is logical to assume that concreteness will be correlated with animacy, as abstract referents can only be inanimate referents. To test the strength of the correlation between the independent variables, which are predominantly categorical variables, I use Cramer's *V* coefficient, which is a test corresponding to correlation measures best suited for categorical variables. Cramer's *V* ranges from 0 (no association) to 1 (perfect association). The interpretation criteria indicated by statisticians are the following: a coefficient between 0.1 and 0.3 indicates weak correlation, between 0.3 and 0.5 indicates moderate correlation, and a coefficient higher than 0.5 indicates strong correlation (Levshina 2015: 209).

The variables that are correlated with each other at least moderately in the Danish dataset are given in (337).

(337) i. animacy and countability ($V = 0.31$, $p < 0.001$)
ii. PR length and number ($V = 0.32$, $p < 0.001$)
iii. definiteness and number ($V = 0.45$, $p < 0.001$)
iv. countability and concreteness ($V = 0.46$, $p < 0.001$)
v. animacy and concreteness ($V = 0.53$, $p < 0.001$)
vi. animacy and semantic notions of possession ($V = 0.59$, $p < 0.001$)

The first four relationships are moderate (*V* between 0.3 and 0.5). Such correlations are unavoidable as they often result from the overall structure of language — plurals are usually

longer than singulars (correlation in (ii), a prime example of iconicity in language) — or they result from the semantics of referents — mass referents are necessarily inanimate (i), countable referents are also most commonly concrete, while mass referents are more often abstract (iv). As regards the correlation in (iii), singular referents do not often occur as indefinites; there is thus an association of plurals and indefinites, as I have indicated in section 6.3.2. Further, there are two strong correlations, both resulting from the semantics of referents. Firstly, abstract referents are necessarily inanimate (v). Secondly, the extended scale of animacy (see section 4.1.1) overlaps to some extent with semantic notions of possession (vi), namely referents annotated as spatial will almost exclusively occur in LOCATIVE possession, while referents annotated as temporal will occur only in TEMPORAL possession.

Since animacy and definiteness both have very strong effects on the selection of the s-genitive in the logistic regression model, it is the variables of number, countability and concreteness whose effects are rather epiphenomenal. These factors are thus secondary to the other, stronger factors.[28] Similarly, notions of possession cannot be described as fully independent since they overlap with animacy to some extent. Most importantly, the variables with strongest effects in the regression model (i.e. animacy, definiteness and topicality) are in no way correlated with each other, meaning that the effects of these variables are fully independent.

The model's performance

To examine the accuracy of the logistic regression model, we have to first consider the baseline model. The baseline model is the probability of the s-genitive occurring without any independent variables included. Thus, the accuracy of the baseline model is equal to the frequency of the s-genitive in the dataset — 77.3%. In other words, if the algorithm had to predict whether it is the s-genitive or the prepositional construction that occurs in any given instance of possessive expression, it would always select the s-genitive as that is more frequent, and in that case the algorithm would be correct in its prediction in 77.3% of cases. The predictive accuracy of the final model with all of the independent variables included is 82.9%. The improvement over the baseline model is statistically significant (χ^2 = 317.304, df = 31, $p < 0.001$), albeit not very substantial. The reason for this limited improvement in the model is the fact that prepositional constructions are low in frequency in the Danish dataset, and as a result the algorithm does not receive enough information about the PP construction to differentiate it from the s-genitive.

To sum up, the variables that have the greatest influence on the selection of the s-genitive in Danish are definiteness, animacy, and topicality of the PR referent (I disregard here the variable of semantic notions). Interestingly enough, length of phrase does not significantly contribute to the regression model. In the next section, I examine the binary logistic regression model for the Swedish dataset, which is more balanced as regards the frequency of both constructions.

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[28] This is also confirmed by the performance of the logistic regression if these variables are removed. Removing the number, countability and concreteness variables results in a model that is nearly as accurate (82.0% compared with 82.9% predictive accuracy) and the effects of variables such as animacy or definiteness are largely unchanged. Removing the variables of animacy, definiteness or semantic notions results in a much weaker model (ca. 78.0% accuracy) in which other variables are not significant and do not explain the selection of the s-genitive in any way.

6.4.1.2 Swedish
The results of the binary logistic regression model for the Swedish dataset are given in Table 74. The variables and their categories are the same as for the Danish model.

Table 74. Binary logistic regression model for the Swedish s-genitive vs. PPs

SWEDISH	Independent variables	Estimate (B coefficient)	Std. error	Significance	Odds ratios
	Intercept	-2.315	1.348	0.086	0.099
PR_ANIMACY		–	–	**0.000**	–
	human vs. inanimate	**2.306**	**0.248**	**0.000**	**10.030**
	animal vs. inanimate	1.807	1.064	0.090	6.090
	collective vs. inanimate	**1.488**	**0.309**	**0.000**	**4.427**
	spatial vs. inanimate	-0.285	0.261	0.275	0.752
	temporal vs. inanimate	0.652	0.575	0.257	1.919
PM_ANIMACY		–	–	0.826	–
PR_DEFINITENESS		–	–	**0.000**	–
	proper name vs. indefinite	**1.616**	**0.294**	**0.000**	**5.034**
	definite vs. indefinite	**1.009**	**0.251**	**0.000**	**2.742**
	possessive vs. indefinite	**1.080**	**0.470**	**0.022**	**2.945**
	zero-marked vs. indefinite	**-2.120**	**0.813**	**0.009**	**0.120**
PR_TOPICALITY	**given** vs. new	**1.186**	**0.167**	**0.000**	**3.273**
PM_TOPICALITY	**given** vs. new	**-1.027**	**0.206**	**0.000**	**0.358**
PR_LENGTH		**-0.325**	**0.058**	**0.000**	**0.723**
PM_LENGTH		-0.062	0.055	0.261	0.940
PR_LENGTH BY PM_LENGTH		0.018	0.010	0.074	1.018
SEMANTIC NOTIONS		–	–	**0.000**	–
	temporal vs. kinship	**4.169**	**1.365**	**0.002**	**64.628**
NUMBER	**singular** vs. plural	0.098	0.223	0.661	1.103
COUNTABILITY	**countable** vs. mass	0.232	0.416	0.576	1.262
CONCRETENESS	**concrete** vs. abstract	-0.011	0.227	0.962	0.989
REGISTER		–	–	0.176	–
	literary vs. blog	0.216	0.210	0.305	1.241
	press vs. blog	-0.141	0.171	0.409	0.868

Animacy
In comparison with inanimate PR referents, human referents are 10 times more likely to occur with the s-genitive rather than with the prepositional construction in the Swedish dataset. Collective PR referents are over 4 times more likely to take the s-genitive in comparison with inanimate referents. The remaining categories within PR_ANIMACY are not statistically significant, either because they are not frequent enough in the dataset (as with animal referents) or because there is not a clear association between the category and the possessive construction (as with spatial or temporal referents). The animacy of the possessum phrase is not statistically significant.

Definiteness
All of the categories in the PR_DEFINITENESS variable significantly contribute to the model. Proper name possessor referents are 5 times more likely than indefinite PR referents to occur with the s-genitive. Definite and possessive referents are also more likely (ca. 2.7 and 2.9 times respectively) to take the s-genitive than indefinite referents. Zero-marked PR referents,

on the other hand, are less likely (by about 88.0%) than indefinite referents to occur in the s-genitive. In other words, they strongly favour the prepositional construction.

Topicality

Similarly as in Danish, we observe converse tendencies as regards the topicality of PR and PM phrases. Given PR referents are over 3 times more likely to occur with the s-genitive than new PR referents, but given PM referents are less likely to occur with the s-genitive than new PM referents. In both constructions, the given referent tends to occur before the new referent.

Length

The length of the PM phrase and the interaction between PR and PM lengths are not statistically significant, similarly to the Danish results. The length of the PR phrase, however, significantly contributes to the Swedish model. PR_LENGTH is negatively correlated with the s-genitive (the odds ratio is 0.723), which means that the longer is the PR phrase, the smaller is the likelihood of occurrence of the s-genitive. To be exact, when the possessor length increases by 1 syllable, the odds for the s-genitive occurring decrease by 27.7%.

Semantic notions

The situation regarding semantic notions of possession is very similar across the two languages. TEMPORAL possession is over 64 times more likely to occur with the s-genitive than the KINSHIP relation is; however, there are only 5 instances of KINSHIP relationship in the Swedish dataset, and so the statistical significance in this case is quite dubious. TEMPORAL possession predominantly occurs with the s-genitive (in ca. 90% of cases) and therefore the regression analysis results in a very high odds ratio for this category; but as I indicated for the Danish results, the automatically selected reference category skews the results. The important finding here is that semantic notions of possession have a significant impact on the regression model.

Other variables

None of the remaining variables (number, countability, concreteness and register) are significant in the regression model. This further confirms that the Danish results, in which number, countability and concreteness are significant, are strongly influenced by the low frequency of the prepositional construction. Since most of the cases include the s-genitive, the model detects even the smallest of differences, which otherwise would not be found significant.

Correlations between independent variables

As regards the correlations between predictor factors in the Swedish dataset, the results of Cramer's *V* test are given in (338). There are three moderate correlations (between 0.3 and 0.5) and one strong correlation (higher than 0.5).

(338) i. definiteness and concreteness ($V = 0.32$, $p < 0.001$)
  ii. animacy and concreteness ($V = 0.42$, $p < 0.001$)
  iii. definiteness and number ($V = 0.49$, $p < 0.001$)
  iv. animacy and semantic notions of possession ($V = 0.52$, $p < 0.001$)

The intrinsic semantics of the referents result in significant relationships, for instance, proper name referents are necessarily concrete (i) and abstract referents are necessarily inanimate (ii). Definiteness and number are also correlated quite strongly (iii) — Swedish is even less prone than Danish to accept singular indefinite referents as PRs in possessive constructions (see also 6.3.2). Lastly, the same two variables as in Danish exhibit a strong relationship: animacy and semantic notions. As mentioned already, there is a significant overlap between these two categories.

  I conclude that concreteness and number are secondary factors whose effect depends on the stronger factors of definiteness and animacy, with which they are correlated. This is further confirmed by the fact that neither number nor concreteness has a significant effect in the Swedish regression model. Semantic notions of possession are also not fully independent, although their effect is still significant to the model.[29] Similarly to the Danish results, there are no significant correlations between the strongest predictors, namely animacy, definiteness, topicality, and length, which confirms that the effects of these variables are fully independent.

The model's performance
The accuracy of the baseline model, i.e. the model before the independent variables are included, is 54.5% (equal to the frequency of the s-genitive in the Swedish dataset). The predictive accuracy of the final model is 76.5%; this improvement over the baseline model is statistically significant ($\chi^2 = 537.627$, $df = 33$, $p < 0.001$). The improvement is considerable and much greater than that for the Danish model. This means that the independent variables included in the regression analysis considerably improve the classification of cases as either the s-genitive or the prepositional construction. The 76.5% rate of success in correct classification is a very good outcome.

  In conclusion, disregarding the unusual high values of TEMPORAL possession (which as I have already indicated strongly depends on animacy), animacy is the most powerful predictor factor in the Swedish dataset, followed by definiteness and topicality. The length of the possessor phrase is also a significant variable, as longer PR phrases favour the prepositional construction. In the next section, the effects of the independent variables on the selection of the s-genitive are presented in the form of Classification Tree diagrams.

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[29] This is further confirmed by retesting the regression model with some of the variables removed. Removing the variables of number, concreteness and countability results in a model with nearly identical predictive accuracy (76.4% compared with 76.5%) and with unchanged effects of animacy, definiteness, topicality, and length. Removing these strongest predictors, on the other hand, results in a much weaker model (ca. 69.5% accuracy).

6.4.2 Classification and Regression Tree Analysis

Classification and Regression Tree Analysis (CRT) is a method that is also based on regression statistics, but differs from logistic regression in some respects. While logistic regression examines the simultaneous effects of all of the independent variables at the same time, CRT examines the variables in a sequential way. The independent variables are tested one at a time until the CRT finds the variable that has the greatest association with the response, namely the occurrence of the s-genitive. The data are then split into two subsets based on that one factor, and then the model tests all the factors again for the created subsets of the data, resulting in more and more smaller subsets. The accumulative effect of certain variables is thus sequential rather than simultaneous, and the data can consequently be visualized in the form of a tree diagram. Further, it is important to note that the order in which the independent factors appear in the diagram does not necessarily reveal any information about the overall importance of these factors. If there are factors that are highly correlated only one of them might appear in the diagram, or if the factors are nearly equally important, one of them will be chosen that best fits the split in the data as chosen by the algorithm. The importance of factors is revealed by their relative importance as reported by the CRT model. The classification model is built up automatically by the statistical software (IBM SPSS) with no input or choices made by the user. The method is also referred to as *classification trees* or *decision trees* (see also section 4.4).

Figure 45 shows the classification tree for the Danish dataset. All of the same independent variables are included in the model as for the binary logistic regression in section 6.4.1. All of these variables are statistically significant in the CRT model.

The first split in the Danish dataset is determined by the animacy of the possessor referent: with spatial and inanimate PR referents the prepositional construction is used in a third of all possessive constructions (Node 1), while with any other PR referent accounts for only ca. 10% of possessives (Node 2). In other words, the s-genitive dominates in both groups, but spatial and inanimate PR referents exhibit an association with the prepositional construction not found with the remaining referents. The right branch of the diagram is further divided based on semantic notions of possession: out of human, collective, temporal and animal PR referents (Node 2) constructions expressing PART–WHOLE and SOCIAL ROLE relationships have a greater affinity with the PP construction (Node 5) than the remaining notions (Node 6). On the left side of the diagram two more splits are defined. Within spatial and inanimate PR referents (Node 1), proper name and definite referents are strongly associated with the s-genitive (Node 3), while indefinite, possessed and zero-marked PR referents are strongly associated with the prepositional construction (Node 4). This is, in fact, the only combination of factors in which prepositional phrases are in a majority over the s-genitive in the Danish classification tree. Further, out of spatial and inanimate PR referents (Node 1) that are also definite or proper name referents (Node 3), the notion of PART–WHOLE is more strongly associated with the prepositional construction (Node 7) than the remaining notions (Node 8). More broadly, we may conclude that the classification tree divides the Danish dataset into two groups based on the animacy of the PR referent: human, collective and temporal referents, for which the s-genitive is almost the only possibility, and spatial and inanimate referents, where the s-genitive dominates, but the prepositional construction also occurs relatively frequently.
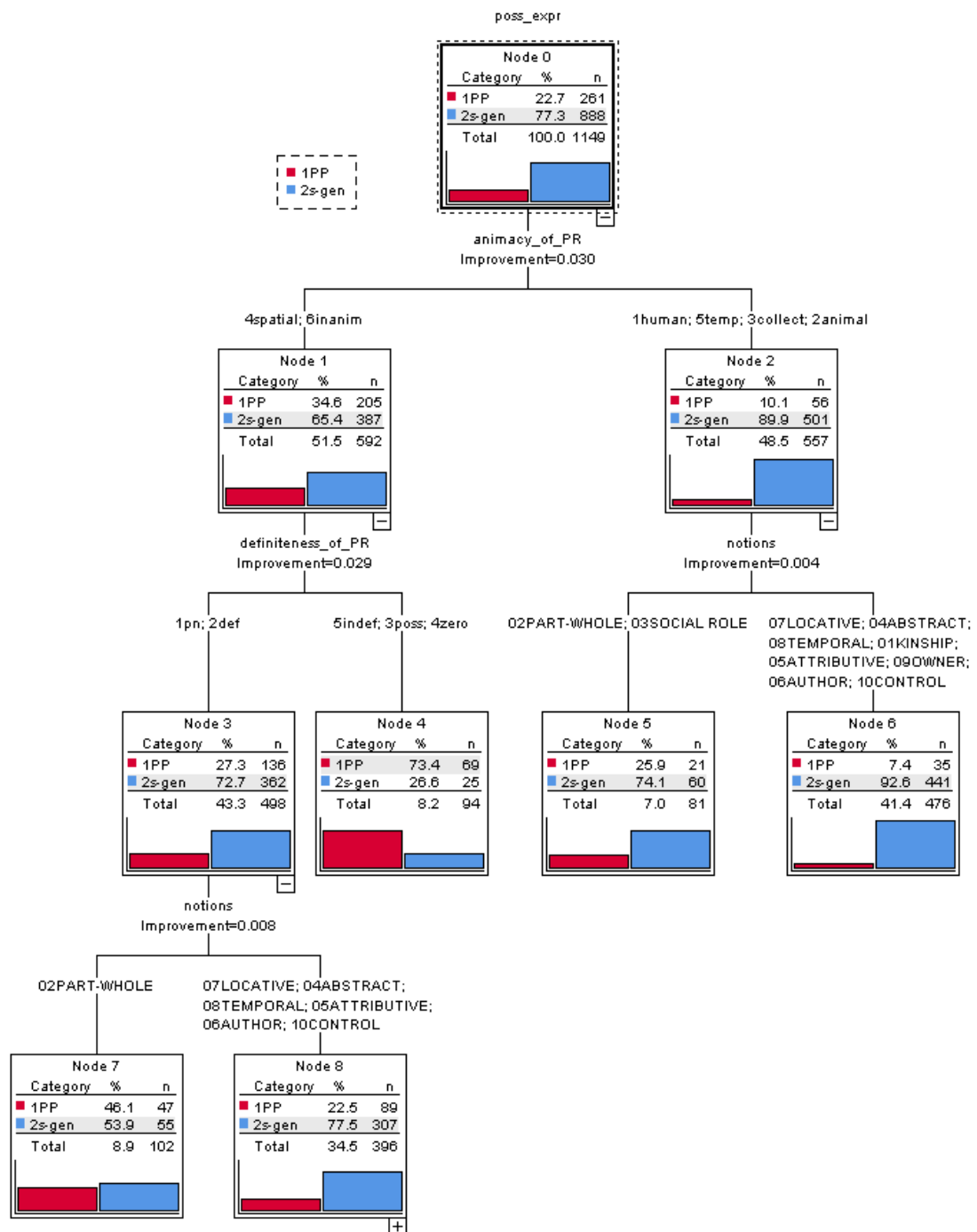
Figure 45. Classification tree displaying the Danish dataset

As regards the classification accuracy of the model, 81.1% of cases are classified correctly in the Danish dataset. The classification model is thus an improvement over the baseline model (77.3%), but it does not perform as well as the logistic regression discussed in section 6.4.1 (the accuracy for the Danish dataset was 82.9%). Further, the classification tree model performs very well as regards predicting the use of the s-genitive construction (97.2% of s-genitives classified correctly), but it performs quite poorly at predicting the prepositional

construction (only 26.4% of cases classified correctly). This confirms the conclusion drawn from the logistic regression model for Danish, namely that the dataset does not provide enough information about the prepositional construction, simply due to its much lower frequency compared with the s-genitive construction.

Lastly, the results for the relative importance of the independent variables as measured by the CRT analysis are given in Table 75. The factor that has the greatest impact on the classification of the data is scored at 100.0%, and the remaining factors are scored relative to the best performing factor. In the Danish classification tree, definiteness of the PR referent is the most impactful and important factor, but animacy of the PR referent is nearly equally important. Semantic notions of possession are also very influential and have a high score in this dataset; they are followed by topicality of the PR referent, concreteness and countability. The remaining factors have only a marginal influence on the classification of the s-genitive and prepositional phrases; the low score indicates that their influence is restricted to very specific contexts and combinations of factors.

Table 75. Relative importance of factors influencing the selection of the s-genitive in Danish

Score	Variable	Importance
1	PR_DEFINITENESS	100.0%
2	PR_ANIMACY	98.2%
3	SEMANTIC NOTIONS	86.0%
4	PR_TOPICALITY	51.8%
5	CONCRETENESS	22.0%
6	COUNTABILITY	17.1%
7	PM_LENGTH	5.5%
8	PR_LENGTH	4.5%
9	REGISTER	2.2%
10	NUMBER	1.8%
11	PM_ANIMACY	1.4%
12	PM_TOPICALITY	0.7%

Figure 46 illustrates the classification tree for the Swedish dataset. The same independent variables are included in the model as for the Danish classification tree. All of these variables are statistically significant in the Swedish CRT model.
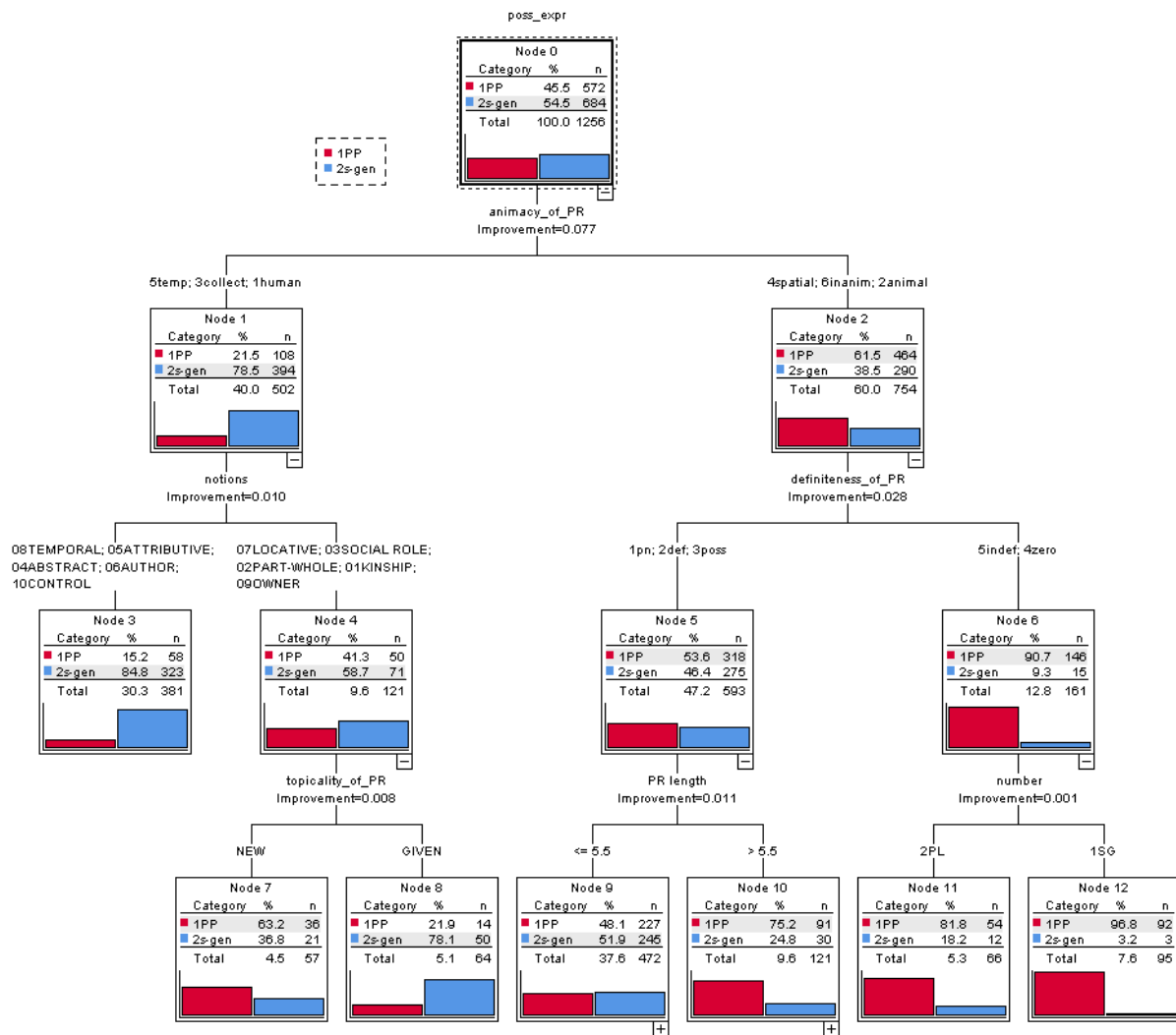
Figure 46. Classification tree displaying the Swedish dataset

The first split in the data is determined by the animacy of the PR referent, similarly to the classification for Danish. Human, collective and temporal PR referents strongly favour the s-genitive construction (Node 1), while spatial, inanimate and animal PR referents favour the prepositional construction (Node 2). Continuing on the left side of the diagram, the second split is determined by semantic notions of possession. Within human, collective and temporal referents, LOCATIVE, SOCIAL ROLE and PART–WHOLE possession are relatively often expressed with a PP construction (Node 4), while the remaining notions of possession are predominantly expressed with the s-genitive (Node 3).[30] The last split of the data on the left side of the diagram is determined by the topicality of the PR referent. Within LOCATIVE, SOCIAL ROLE and PART–WHOLE possession, new PR referents favour the prepositional construction (Node 7), while given PR referents favour the s-genitive (Node 8). On the right side of the tree diagram, within spatial, inanimate and animal PR referents (Node 2), proper name, definite and possessed referents exhibit a slight preference for PPs, with the s-genitive being nearly

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[30] The data grouped in Node 4 also include KINSHIP and OWNERSHIP possession, but since these are so infrequent in the dataset (see section 6.3.5), they are disregarded in the discussion.

equally frequent in this context (Node 5). Indefinite and zero-marked PR referents, on the other hand, exhibit an overwhelming preference for the prepositional construction, with very few instances of the s-genitive (Node 6). The cases grouped in Node 5 are further subdivided with respect to possessor length: PR phrases equal to or shorter than 5.5 syllables have a nearly equal chance of occurring with either the s-genitive or PPs (Node 9), while PR phrases longer than 5.5 syllables have a much greater likelihood of occurring with the prepositional construction (Node 10). Within indefinite and zero-marked PR referents (Node 6), plural referents have a slightly larger frequency with the s-genitive (Node 11), while singular PR referents occur nearly exclusively with the PP construction (Node 12). This tendency confirms the results discussed in section 6.3.2, namely that the s-genitive construction is prone to avoid indefinite singular PR referents. Similarly to the Danish classification tree, the Swedish tree diagram clearly distinguishes two groups of referents based on the factor of animacy, namely human, collective and temporal PR referents, which favour the s-genitive, and spatial and inanimate referents, which favour the prepositional construction.

The predictive accuracy of the classification model for the Swedish dataset is 74.8%; the performance of the model is thus marginally worse than that of the logistic regression model (76.5% accuracy). The Swedish model may not classify as many cases correctly as the Danish model does, but most importantly, the Swedish model is equally good at classifying the s-genitive (75.1% of cases classified correctly) as the prepositional construction (74.5% of cases classified correctly). The dataset that is more balanced in terms of the frequency of both constructions yields a more balanced, and thus reliable, classification model.

The results for the relative importance of the independent variables in the Swedish classification tree are given in Table 76.

Table 76. Relative importance of factors influencing the selection of the s-genitive in Swedish

Score	Variable	Importance
1	PR_ANIMACY	100.0%
2	PR_DEFINITENESS	39.6%
3	PR_LENGTH	39.2%
4	SEMANTIC NOTIONS	34.7%
5	PR_TOPICALITY	21.5%
6	PM_LENGTH	15.3%
7	PM_TOPICALITY	9.7%
8	NUMBER	9.3%
9	PM_ANIMACY	4.4%
10	CONCRETENESS	3.0%
11	COUNTABILITY	1.9%
12	REGISTER	1.2%

Animacy of the possessor referent is the single strongest predictor in the Swedish dataset. The next three most influential factors are PR definiteness, PR length, and semantic notions of possession. All of these are scored with a very similar relative importance, but they are not nearly as impactful as animacy. Topicality of the PR referent and length of the PM referent are also of significant importance, while the remaining factors, scored under 10%, are of very limited importance.

6.5 Summary

In this chapter, the results of a study of variation between the s-genitive and the prepositional construction in present-day Danish and Swedish have been presented. Firstly, the general frequencies of adnominal possessive expressions used in the corpora were explored (section 6.2). The greatest difference between Danish and Swedish is the frequency of the possessive prepositional construction and the pronominal construction with regular pronouns. While PPs are used nearly as often as the s-genitive in Swedish (ca. 27% and 32% of all possessives respectively), the same construction is used much less frequently in Danish (PPs constitute only ca. 10% of all possessives, while the s-genitive constitutes ca. 36%). At the same time, Danish texts use regular pronouns much more often than Swedish texts (ca. 38% and 24% of all possessive uses respectively). This difference in frequencies, in particular in the prepositional construction, has consequences for the analysis of factors that influence the selection of the s-genitive vs. the prepositional construction. While certain tendencies are very clear in the Swedish dataset, in which the two constructions in focus are nearly equally frequent, the same tendencies are, at best, much less pronounced in the Danish dataset, and at worst, not discernible at all.

Secondly, a selected group of factors that may influence the selection of the s-genitive and the prepositional construction were examined independently of each other (section 6.3). These factors include animacy, definiteness, topicality, phrase length, semantic notions of possession, number, countability, concreteness, and register. Using the chi-square test of independence I tested the association between a given variable and the prepositional construction (s-genitive and PPs). Of all the factors listed, only a few have no association with the possessive construction when studied separately, namely animacy of the PM referent, topicality of the PM referent (insignificant in Danish only), number, countability and register (the significance of the last three varies marginally depending on the language). The analysis of the aforementioned factors results in a determination of the most typical possessor referents found in the Danish and Swedish corpora. The s-genitive most commonly includes a human, definite or proper name referent that is at the same time given (familiar) in the discourse situation. In addition, the PM phrase tends to be longer than the PR phrase in the s-genitive construction. The prepositional construction, on the other hand, most commonly includes an inanimate and indefinite, newly-introduced PR referent. The PR phrase tends to be longer than the PM phrase.

Finally, all of the predictor factors were brought together in a multivariate analysis. Two types of statistical models were presented and discussed, namely binary logistic regression, which measures the simultaneous effect of all factors on the selection of the s-genitive, and Classification and Regression Tree Analysis, which divides the data into

subgroups based on the relative importance of given factors for each selected subdivision. The analyses allowed me to discern the factors that have the greatest impact on the selection of the s-genitive construction. In the Danish dataset, definiteness of the PR referent is the most influential, but it is very closely followed by animacy of the PR referent and semantic notions of possession. Topicality of the PR referent is the fourth most influential factor. In the Swedish dataset, animacy of the PR referent is unequivocally the strongest predictor factor. Definiteness, length of the PR phrase, and semantic notions are nearly equally important, but not nearly as influential as animacy. Notions of possession, however, are strongly correlated with animacy in both Danish and Swedish; thus, their effect on the selection of the s-genitive is not independent. The remaining factors that exhibit the strongest influence on the dataset, such as animacy, definiteness and topicality, are fully independent of each other.

All in all, the results provide strong support for research hypothesis A, which states that the use of the s-genitive and the prepositional construction in Danish and Swedish is not arbitrary, but is heavily influenced by semantic and pragmatic factors (see Hypothesis A, sections 1.2 and 4.1.4). In the final chapter, I conclude the dissertation with a discussion that brings together the most important results obtained from both the diachronic and synchronic corpus studies.

CHAPTER 7

Discussion and conclusions

The aim of this dissertation has been to examine the distribution and characteristics of adnominal possessive constructions in Danish and Swedish from both a diachronic and a synchronic perspective. For that purpose, two corpus studies were designed. The first study is based on historical Danish and Swedish texts written between 1250 and 1700 (largely based on a corpus previously compiled by Skrzypek, Piotrowska & Jaworski 2021); the second is based on a newly compiled corpus of contemporary texts, including literary, press and blog texts. The constructions studied are the following: the genitival construction (*Annas hus* 'Anna's house'), the prepositional construction (*taket på huset* 'the roof of the house'), and the pronominal constructions with regular pronouns (*hennes hus* 'her house') and reflexive pronouns (*Hon älskar sitt hus* 'She loves her [own] house').

The final chapter of this dissertation begins with a summary of the most important results obtained from both corpus studies (section 7.1). In section 7.2, I revisit the research hypotheses presented at the beginning of the dissertation and discuss the factors that proved to have the greatest influence on the genitive construction (in the historical corpus) and on the selection of the s-genitive vs. the prepositional construction (in the contemporary corpus). The results are discussed with reference to various tenets of Functional Grammar, in particular the economic motivation in language. In section 7.3, I conclude the dissertation by presenting implications for further research.

7.1 The corpus studies – summary

The aim of the corpus study of Danish and Swedish historical texts (see Chapter 5) was to present a comprehensive overview of the distribution of the four adnominal possessive constructions, in particular in terms of the semantic notions of possession expressed through them, as well as to analyse in detail the constraints that characterize the use of the genitival construction. The latter expression is of particular interest as its contemporary counterpart — the s-genitive — is, together with the prepositional construction, the main focus of the study of present-day Danish and Swedish possessive expressions.

In selecting the timeframe for the diachronic study, namely 1250–1700, the periodization of Danish and Swedish was considered (see section 4.2.1). The modern period begins for both languages around 1700–1750; there was thus no indication that major changes in the distribution of attributive possessive expressions might have taken place after that time. The very low frequency of the prepositional construction in the diachronic corpus (on average 2.4% of all possessives) in comparison with the contemporary corpus (18.2%) indicates the contrary, and merits further study. Because of this low frequency of possessive PPs, any comparison between the genitive and the prepositional construction in the historical corpus

was not feasible. For this reason, the general frequencies, as well as notions of possession, are compared between the genitive and the pronominal construction. While these two constructions share the same NP structure (namely, the order of possessor and possessum phrases), the possessors differ in terms of topicality, since pronouns rank higher on the accessibility scale (O'Connor, Maling & Skarabela 2013; see also Ariel 1988; 2014). This makes these two constructions particularly well-suited for comparisons with regard to the notions of possession expressed through them. Concerning the factors influencing the selection of the genitive, on the other hand, the construction is studied independently in the diachronic corpus, with comparisons only with the overall number of NP referents in the texts and not with a particular possessive construction.

The results of the diachronic study indicate that, firstly, the decline and eventual loss of the genitive declension proceeded more rapidly in Danish than in Swedish (which is in line with previous findings that the erosion of the case system began earlier in Danish; see e.g. Ringgaard 1986; 1989; Norde 1997: 27). Secondly, as regards the internal word order in the possessive phrase, the order in the genitive construction is largely established as *modifier first, head noun second* already in the oldest extant texts in both languages. In the case of the pronominal construction, however, Swedish exhibits a greater proportion of postposed regular pronouns than Danish does. Danish is thus at the vanguard of the structural changes that the East Scandinavian languages went through, as exemplified here in possessive constructions, namely the loss of the case system and the establishment of a fixed order within a phrase (the order *modifier first, head noun second*) — in contrast to Norwegian, which allows postposition of possessive modifiers, or Icelandic, which exhibits some fluctuations with respect to the preferred order (see Schuster 2019).

Further, the data analysed in Chapter 5 indicate that there is an association between the semantic notions of possession and the construction selected for their expression. While prototypical notions of possession, such as KINSHIP, PART–WHOLE relationships and OWNERSHIP, are most often expressed through pronominal constructions, other more marginal notions, such as ABSTRACT and ATTRIBUTIVE possession, tend to be expressed with the genitive construction. The prepositional construction, despite being very infrequent in the material, also exhibits a clear association with notions of possession — it is almost exclusively used for expression of LOCATIVE possession. I return to the discussion of the causes of these associations in section 7.2.

The results of the analysis of factors that characterize the referents in the genitive construction allow me to put forward a model of the most typical possessor referent in the genitive construction found in Danish and Swedish historical texts. The factors explored included animacy, definiteness, topicality, length of the phrase, number, countability and concreteness. Some of these factors, such as length and concreteness, did not exhibit a significant association with the genitive construction. Based on the statistically significant factors, the most typical possessor referent in the genitive was illustrated in Table 32 in section 5.3.6, which is repeated here as Table 77.

Table 77. Characteristics of a typical possessor referent in genitive in Danish and Swedish

Variable	Possessor referent
ANIMACY	Animate (human)
DEFINITENESS	Definite or proper name
TOPICALITY	Given
NUMBER	Singular
COUNTABILITY	Countable

This set of characteristics is by no means surprising, as it reflects a referent that is the most accessible and familiar (in terms of definiteness and topicality), and the most prototypical in terms of the semantic notions of possession — by this I mean that the prototypical notions, such as OWNERSHIP, KINSHIP and SOCIAL ROLE relations, necessarily involve a human PR referent. A PR referent in the genitive that has these characteristics is second only to possessive pronouns in its accessibility. If a possessive pronoun is not used for the expression of the prototypical notions (as is the most frequent case in the diachronic corpus), the genitive will be selected. Since one of the core functions of possessor referents is to serve as reference points for identifying the possessum referent (cf. Langacker 1995: 58–59), it follows that the PR referent ought to be as easily accessible as possible to facilitate the identification of the PM referent. Human, definite and given referents lend themselves perfectly to that role, since such referents are easily predictable as possessors and often exhibit intrinsic links to different types of PM referents (such as kin and body part referents).

Lastly, and perhaps most importantly as regards the comparison with the contemporary possessive constructions, possessive prepositional phrases, as already mentioned, are extremely infrequent in the diachronic corpus. They constitute just a small proportion of all attributive possessive expressions used (to be exact, they constitute 2.0% of possessives in Danish and 2.8% in Swedish). Even with such small numbers, however, there is a discernible tendency for the prepositional construction to be more frequent in Swedish than in Danish, as it is consistently more frequent in that language in each period studied.

The second empirical part of the dissertation is the study of contemporary Danish and Swedish possessive expressions, which focuses in particular on the variation between the s-genitive construction and the prepositional construction. The aim of this study was to determine the constraints on the selection of the s-genitive vs. the prepositional construction and to examine which of the studied factors have the greatest influence on the selection of one possessive expression over the other. Statistical models based on binary logistic regression and Classification and Regression Tree Analysis were used to measure the effect of factors such as animacy, definiteness, topicality, length, and others.

Similarly as in the diachronic results, there is a significant convergence between the semantic notions of possession and the possessive construction selected for their expression. In both Danish and Swedish, the prepositional construction is associated with the expression of notions of PART–WHOLE and LOCATION, although this tendency is much stronger in

Swedish. The s-genitive construction, on the other hand, is linked to expressions of SOCIAL ROLE relationship, as well as notions of ABSTRACT, ATTRIBUTIVE, TEMPORAL and AUTHOR possession. The results confirm that the underlying notions of location or direction are present in the possessive PP construction, which has consequences for the semantic notions that are most frequently expressed through this construction.

The detailed analysis of factors influencing the selection of the s-genitive and the prepositional construction, presented in Chapter 6 provides us with a model of the most common possessor referents found in contemporary Danish and Swedish texts. Since Danish and Swedish exhibit the same tendencies, with the only differences being the strength and prominence of these tendencies (which are consistently more conspicuous in the Swedish data), the results are presented for both languages together. Table 72 from section 6.3.7 is repeated here as Table 78.

Table 78. Characteristics of typical possessor referents in contemporary Danish and Swedish

Variable	s-genitive	prepositional construction
ANIMACY	Animate (human)	Inanimate
DEFINITENESS	Definite or proper name	Indefinite or zero-marked
TOPICALITY	Given	New
LENGTH	Longer PM phrase	Longer PR phrase
CONCRETENESS	Concrete	Abstract

The domains of possessor referents in the s-genitive and the prepositional construction are presented as polar opposites that are in complementary distribution. The factors that have the greatest impact on the possessive construction selected are presented in (339) below (all of the factors here, except for the semantic notions, are applied solely to the possessor referent).

(339) DANISH   definiteness – animacy – semantic notions – topicality

SWEDISH   animacy – definiteness – length – semantic notions

In general, animacy and definiteness are without doubt the strongest predictors of the selection of the s-genitive vs. the prepositional construction. I continue to discuss these factors in section 7.2.

Finally, the case of the prepositional construction needs to be addressed. As already mentioned, the prepositional construction is not frequently used in the historical Danish and Swedish texts. The time period from which the corpus texts originate coincides with the decline of the case system and eventual reanalysis of the ending -*s* from a case marker to a phrase marker (Norde 1997; Perridon 2013; Piotrowska 2017). The decline and eventual loss of the case system in a language is often linked with the emergence of a fixed word order and an increased use of prepositional constructions (see Norde 1997: 33 and references therein).

As case distinction weakens and case marking becomes less prominent, the prepositional construction may become more frequent and eventually take over the domain of the genitive (as was the case in Romance languages; see e.g. Carlier, Goyens & Lamiroy 2013; Carlier & Lamiroy 2014). In the diachronic study presented here, however, no such development is discernible, as the PP construction is quite stable and low in frequency throughout the four periods studied (from 1250 to 1700). The fact that the case ending -*s* was reanalysed as a phrase marker that became the primary means for expressing possession in an adnominal construction meant that there was no strong demand for the prepositional construction to expand. Compared with the diachronic corpus, however, both Danish and Swedish display the same tendency in the contemporary corpus, namely an extreme rise in the use of possessive prepositional phrases. We observe a six-fold increase in the frequency of use of PPs in the Danish texts and a 10-fold increase in the Swedish texts. Notwithstanding this common development, the greatest difference between Danish and Swedish in the contemporary corpus is the frequency of use of the prepositional construction. While the ratio of s-genitives to PP constructions is ca. 77% to 23% in Danish, it is much more balanced in Swedish, at 55% to 45%.

The selection of two such closely related languages as Danish and Swedish for the study of possessive expressions might have seemed controversial and redundant, but the aforementioned differences indicate that this choice was sound. The results demonstrate a subtle and perhaps counterintuitive difference in the scope of use of the prepositional construction, which was signalled already in the historical texts. It seems that among Germanic languages, possessive prepositional phrases are more common in the western varieties where the construction has a dedicated preposition, like in English, Dutch and even Norwegian, where the preposition *til* 'to' is much more specialized as a possessive preposition than the Danish and Swedish *av* 'of' (for more on Norwegian possessive PPs see Stolz et al. 2008; Lødrup 2009; 2014; for a diachronic perspective on Icelandic PPs with body parts see also Schuster 2019). Of the two languages studied here, Swedish uses the prepositional construction more often and more freely, perhaps under the influence of the western Germanic languages. Further studies are needed to examine these differences and a possible isogloss between the three Mainland Scandinavian languages.

7.2 Constraints on the use of adnominal possessives – research hypotheses revisited

In the present study the constraints on possessive variation have been linked to various tenets from the framework of Functional Grammar, such as the animacy hierarchy, the iconic and economic motivation in language, and the referent's status in discourse (i.e. topicality). In Chapters 1 and 4 the following research hypotheses were proposed (see sections 1.2 and 4.1.4):

A. The use of a particular possessive construction is not arbitrary, but depends on interconnected constraints.

B. The constraints on the use of possessive constructions change over time.

C. In historical texts, the adnominal possessive constructions are used more frequently for expressions of prototypical notions of possession than for expressions of more marginal notions. Thus, the use of possessives advances from prototype to periphery.

In the following I will discuss each of the hypotheses posited at the beginning of the dissertation in the light of the results obtained and the aforementioned functionalist framework.

Hypothesis A: The use of a particular possessive construction is not arbitrary, but depends on interconnected constraints.

The results of both corpus studies clearly indicate that the use of adnominal possessive constructions in Danish and Swedish is influenced by and dependent on a set of interconnected factors. Based on the results from the corpus of contemporary Danish and Swedish texts, some constraints can be identified that have the greatest effect on the selection of the s-genitive vs. the prepositional construction. These constraints are animacy, definiteness, semantic notions of possession, length, and topicality (see (339) above). Of these factors, three can be selected, namely animacy, definiteness and length of the PR phrase, to create a distinct preference structure for the s-genitive based on binary oppositions (i.e. human – inanimate, definite – indefinite, long PR – long PM). The preference structure is presented in Figure 47. Human PR referents are illustrated with the s-genitive construction, while inanimate PR referents are illustrated with the prepositional construction, as the results clearly indicate that animacy is the strongest factor in the variation. It is important to emphasize, however, that both constructions are available in each of the demonstrated contexts, although their acceptability differs, as indicated by the arrow on the right-hand side of the graph.

Animacy, definiteness and length are selected here, firstly, because they are consistently the most influential constraints in both Danish and Swedish (admittedly length does not play such an important role in Danish — see section 6.3.4 — but this may be due to insufficient data on the prepositional construction). Secondly, the relative importance of these constraints is very clear-cut in the results — animacy is the strongest predictor, followed by definiteness, and then by length. This allows us to represent the constraints in a hierarchical and dichotomous preference structure.
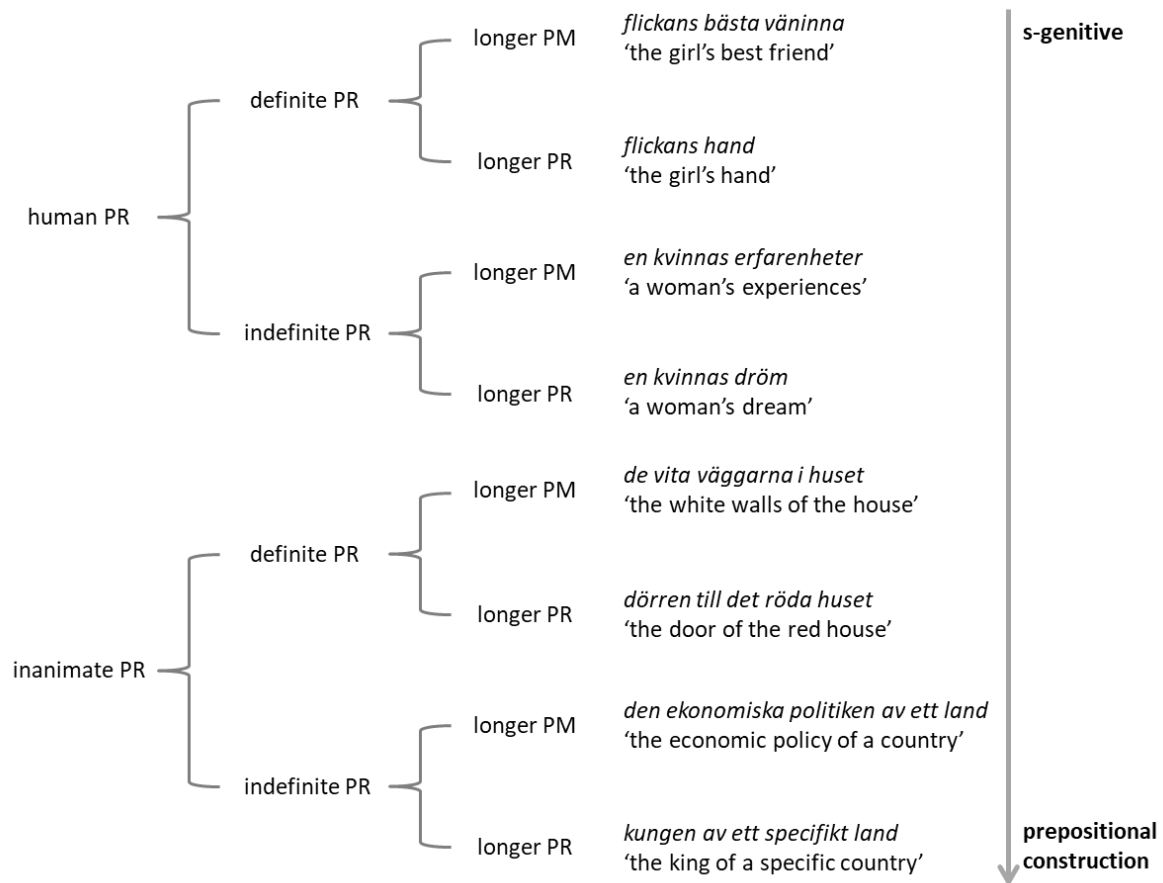
Figure 47. Preference structure for the Danish and Swedish s-genitive

The preference structure illustrates what the statistical models presented in Chapter 6 predict, namely that the s-genitive is more likely to be found with human, definite PR referents realized in possessive NPs where the PM phrase is longer than the PR phrase. The prepositional construction, on the other hand, is more likely to be found with inanimate, indefinite PR referents in NPs where the PR phrase is longer than the PM phrase. I have argued that this opposition of the s-genitive and the prepositional construction in terms of the favoured types of PR referents has its foundation in the economic motivation in language (Haiman 1983; Givón 1995b). One of the principles of economic motivation, the quantity principle, states that information that is accessible and easily predictable requires less coding as it is easy to process and conceptualize. Yet another principle connected to economy is the pragmatic linear order principle, which states that the linear order of elements (e.g. word order in a possessive NP) will reflect the accessibility and familiarity of referents, with familiar and accessible information placed first. Human and definite referents (and proper name referents as well) rank very high on the accessibility scale (O'Connor, Maling & Skarabela 2013; see also Ariel 1988; 2014); they are also predictable and frequent as PR referents in a possessive NP (Haspelmath 2008). Language users process such referents easily and earlier than new, less predictable information; it is thus preferred to place such referents early in a linear string in a possessive NP. The s-genitive, which places the PR referents before the PM referents, is thus the preferred construction. The prepositional construction, on the other hand, is preferred when the PR referent is less predictable and accessible, which warrants placing it

after the PM referent as this allows easier processing. This reasoning is also in accordance with the reference-point model put forward by Langacker (1995) and Taylor (1996). The more accessible and familiar the PR referent is, the better it fills the function of a reference (or anchor) for identifying the PM referent — it also follows that the s-genitive is the construction in which the reference-point theory is best realized, since according to the linear order principle, it would not be efficient to place the identifying element (PR referent) after the identified element (PM referent).

Further, while topicality and semantic notions of possession are also strong predictors in the possessive variation in present-day Danish and Swedish, these constraints do not lend themselves to such a straightforward presentation in the graph-like form of Figure 47. Topicality is utilized in this dissertation based on the number of referent mentions in the discourse; thus, any examples would need to contain whole passages of texts. Definiteness, which overlaps to some extent with topicality (see section 6.3.3), is a good enough correlate for this category. The results regarding the semantic notions of possession, on the other hand, cannot be easily represented in a binary opposition. Rosenbach (2002: 267) presents a similar preference structure for the English s-genitive, with three factors: animacy, topicality and possessive relation. The latter constraint is described as [±prototypical], where [+prototypical] includes relations in which the PR referent displays a close relation to the PM referents in terms of iconicity, for example, KINSHIP or PART–WHOLE relationship including body parts. The results of the study of contemporary Danish and Swedish do not allow such a straightforward division. Firstly, there are very few examples of KINSHIP relationship in the corpus of contemporary texts. This is due to the fact that the topics of the texts are varied and rather general, as opposed to the historical corpus, which includes very specific legal texts in which many examples of KINSHIP relations are found. For this reason, no conclusion can be drawn about this particular prototypical notion of possession. Secondly, the PART–WHOLE relationship, which is also regarded as prototypical, is significantly associated with the prepositional construction in the corpus, contrary to the results presented by Rosenbach (2002). As already discussed in section 6.3.5, however, there is a clear divide in PART–WHOLE examples in that body parts are nearly exclusively expressed through the s-genitive, while parts of objects are frequently expressed through the prepositional construction. In conclusion, the constraint of semantic notions of possession does affect the selection of the possessive, namely in that PART–WHOLE and LOCATIVE possession are most frequently expressed through the prepositional construction — the semantics of these relations, however, are intrinsically linked to the animacy of the PR referent and to the schema of location that underlies the preposition.

To sum up, the results for Danish and Swedish confirm that the selection of the s-genitive vs. the prepositional construction is dependent on a set of interconnected factors. Thanks to the statistical models employed in the study, the factors may be ordered in a hierarchical way with animacy as the strongest predictor, followed by definiteness, length, topicality and semantic notions of possession. The results also largely confirm previous findings regarding English genitive variation, where animacy, weight (corresponding to length) and topicality are the strongest predictors of the selection of the s-genitive (Jucker 1993; Rosenbach 2002; 2005; 2017; Hinrichs & Szmrecsanyi 2007, to name just a few). I argue that the effect of these constraints may be attributed to the overarching constraint of

economy in language — human, definite and shorter referents are easier to process and more predictable in possessive NPs, they will thus be used in the s-genitive construction more frequently, as it places the PR referent first.

Hypothesis B: The constraints on the use of possessive constructions change over time.

As regards the possible differences in the constraints on possessive constructions between the historical and contemporary corpora, only the (s-)genitive construction provides enough data for such a comparison. No constraints can be defined for the prepositional construction in the Old Danish and Swedish corpus, as the very low frequency of examples with this construction prevents any generalizations. There are, however, good grounds to claim that, in the course of its development, the possessive prepositional construction encroached on some of the contexts previously dominated by the genitive and pronominal constructions, such as expressions of LOCATIVE and PART–WHOLE possession with inanimate referents. In Danish, the frequency of use of PPs in PART–WHOLE relationships increased from 1.1% of all attributive possessives in Old Danish texts to 24.5% in present-day texts. In Swedish, this rise in frequency is particularly conspicuous in instances of LOCATIVE possession — the use of PPs increased from 22.7% to 56.6% of all possessives used in this context (see sections 5.4.1 and 6.2.2). Thus, the constraint of semantic notions of possession has evidently changed as regards the notions commonly expressed through the s-genitive and the prepositional construction.

As regards the constraints on the genitive construction, Tables 77 and 78 in section 7.1 indicate that some of the strongest predictors in the dataset — animacy, definiteness and topicality — have not changed for the genitive. In both corpora, the genitive construction favours human, definite and given referents. There are, however, some significant differences.
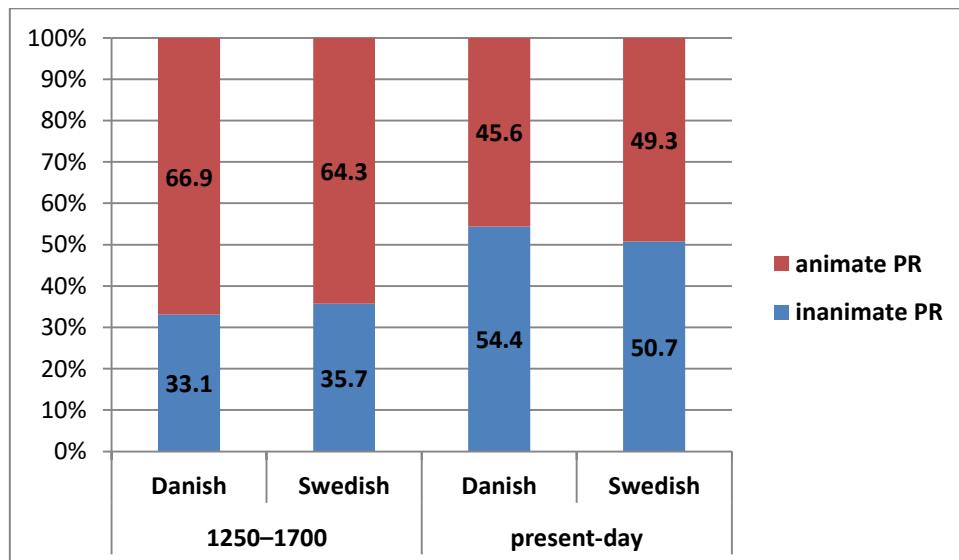
Figure 48. Proportion of animate and inanimate PR referents in the (s-)genitive construction in both corpora

As regards animacy, we observe a considerable increase in the frequency of inanimate PR referents. In the historical texts, human PR referents constitute nearly half of all PR referents (47.8% in Danish and 47.4% in Swedish), while inanimate PR referents constitute

ca. 22%. In the contemporary texts, on the other hand, human and inanimate PR referents in the s-genitive occur in near equal proportions of ca. 32% for each referent in both languages. Simplifying the animacy scale into a binary opposition of animate (comprising human, animal, abstract animate and collective referents) and inanimate (comprising spatial, temporal and inanimate referents), the differences are even more pronounced; see Figure 48.

In short, the genitive construction in Danish and Swedish texts written between 1250 and 1700 contained predominantly animate PR referents. The contemporary s-genitive construction includes more inanimate PR referents (in Danish) or equally many animate and inanimate referents (in Swedish). This difference between the corpora is partly due to the fact that two types of possessive notions that include exclusively human PR referents are excluded in the present-day corpus, namely OWNERSHIP and CONTROL (since these cannot be expressed with prepositional phrases).[31] On the other hand, this difference illustrates a development also found in English, namely that the s-genitive construction increasingly admits inanimate PR referents for economy-related reasons. Hinrichs and Szmrecsanyi (2007: 467–468) found that the English s-genitive occurs with inanimate PR referents more frequently than expected in press texts. The authors argue that inanimate possessor referents increasingly take the s-genitive, firstly, because of the constraint of topicality (highly thematic and salient referents are more likely to take the s-genitive even if they are inanimate), and secondly, because of the increasing density of journalistic prose. If the text has to be concise, as press texts usually do, then the s-genitive, which is a synthetic construction as opposed to the analytical prepositional construction, is the most efficient way to express possession. This tendency is substantiated by the results from Danish and Swedish. The majority of inanimate PR referents that take the s-genitive occur in press texts, in both Danish (59.6% of all inanimate PRs) and Swedish (46.7% of all inanimate PRs).[32] For comparison, human PR referents in the s-genitive are distributed relatively evenly across the registers (in the Swedish corpus: 34.0% in press texts, 29.6% in literary texts, 36.4% in blog texts; in the Danish corpus: 40.6% in press texts, 31.5% in literary texts and 27.9% in blog texts). Even though the data are not very robust, and even though register is not a significant variable in the multivariate analysis (see section 6.4), there is an evident tendency for inanimate PR referents in the s-genitive to occur more frequently in press texts, in accordance with economy-related motives.

As regards definiteness, there are some significant changes that can be attributed to the grammaticalization of definite and indefinite articles (for more on constraints on article grammaticalization see Skrzypek, Piotrowska & Jaworski 2021). Firstly, in the present-day texts there are more overtly definite PR referents in the s-genitive than in the historical texts. Following the same logic, as the frequency of definite-marked referents rises, the frequency of zero-marked referents decreases. Since the definite article was not yet fully grammaticalized in the oldest corpus texts, it is natural that zero-marked referents were more frequent in these texts. In the present-day texts, zero-marked PR referents in the s-genitive essentially disappear — if there is a need to express a PR referent in a zero-marked NP, it will occur in the

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[31] Incidentally, this is another example of a difference between the West (Norwegian) and the East (Danish, Swedish) Continental Scandinavian languages — in Norwegian it is acceptable to express OWNERSHIP with a prepositional construction, in particular with pronominal or proper name possessors, e.g. *bilen til ham* 'his car' or *sykkelen til Ola* 'Ola's bicycle' (Lødrup 2014: 37–38).

[32] Inanimate, spatial and temporal referents are included in this count.

prepositional construction. In sum, with the progress of the article grammaticalization, the constraint of definiteness becomes more pronounced and has a stronger effect on the s-genitive construction.

As regards topicality, the proportion of given to new PR referents in the genitive stays at the same level in both corpora and in both languages (ca. 70% given referents to 30% new referents). The constraint for PR referents in the genitive construction to be salient and familiar is thus already in effect in the oldest extant texts.

In conclusion, the constraints on the selection of the possessive construction (in particular, on the genitive construction) do not change in the sense that some of them become insignificant with the development of the s-genitive construction and new constraints come into play. Rather, the constraints change in terms of their internal structure and strength of effect, as in the case of animacy and definiteness. The greatest difference in the effect of constraints between the two corpora can be observed with semantic notions of possession — a quite dramatic change occurs in the expression of PART–WHOLE and LOCATIVE possession as the prepositional construction gains in frequency in the present-day texts.

Hypothesis C: In historical texts, the adnominal possessive constructions are used more frequently for expressions of prototypical notions of possession than for expressions of more marginal notions. Thus, the use of possessives advances from prototype to periphery.

The last research hypothesis is connected to the notion of iconicity, understood in terms of conceptual distance between possessor and possessum referents. In the prototypical notions of possession, namely OWNERSHIP, KINSHIP and PART–WHOLE, the referents exhibit a closer bond than do the referents in more peripheral types of possession, such as ABSTRACT or LOCATIVE possession. At the same time, since the closer bond is often a result of an intrinsic relation between the referents (especially in the case of inalienable possession with kin referents and body parts), both PR and PM referents are easily predictable and salient in possessive constructions. For these reasons, there are good grounds to expect that in the historical texts, attributive possessive constructions will be used more frequently for expressions of prototypical possession than for more peripheral notions. This is not to say that more peripheral notions do not occur in historical texts, rather that other means different from attributive constructions are used to express them. In other words, the hypothesis states that adnominal constructions are used in the diachronic corpus predominantly for expressions of possession that can be subsumed under iconic motivation in language.

The hypothesis is only partly borne out by the results obtained from the corpus of historical Danish and Swedish texts. As discussed in section 5.4.2, the frequency of adnominal possessive constructions with prototypical possession decreases over the four periods studied (from 1250 to 1700), while the frequency of possessives with non-prototypical notions increases. This development, however, is evident only in the Danish corpus. In the Swedish historical texts, the marginal notions of possession are frequently expressed through adnominal possessives even in the first period, and they have already become more frequent than the prototypical notions by ca. 1450 (see also Figures 23 and 24 in section 5.4.2). In the present-day texts, the notion of KINSHIP possession is much less frequently expressed with adnominal constructions than in the historical texts (see section 6.3.5). This may, however, be

due to the differences in genres and registers between the corpora — the diachronic corpus includes legal texts, which exhibit a high frequency of kin referents and which do not have a counterpart in the contemporary corpus. PART–WHOLE relations, on the other hand, are more frequent in present-day texts, as are some of the marginal notions (such as ATTRIBUTIVE and LOCATIVE possession). Other marginal notions, notably ABSTRACT and TEMPORAL possession, are just as frequent in the present-day corpus as they were in the last periods of the historical corpus. There is, therefore, not enough evidence in the data to fully support Hypothesis C. The use of the adnominal possessive constructions explored here, in particular the genitive and the prepositional construction, cannot be claimed, based on the corpus studies, to advance from prototype to periphery during their development.

7.3 Implications for further research

The studies reported in this dissertation, being of a comparative and explorative nature, open a number of opportunities for further research.

Firstly, some of the issues raised here remain unresolved, in particular the development of the prepositional construction after 1700. In the corpus of historical texts studied here, there is no significant rise in the frequency of use of possessive prepositional phrases. The assumption is, therefore, that the rise in frequency was triggered after 1700, perhaps under the influence of other languages, such as English or even Norwegian.

Secondly, the study of possessive variation presented here could greatly benefit from the application of a diverse set of methods and tools. For instance, a study among native speakers of Danish and Swedish, including surveys with Acceptability Judgement Tasks, could reveal more about how language users follow the constraints on the selection of the possessive construction. In this way, the acceptability of the s-genitive vs. the prepositional construction could be studied in various contexts found in the corpus study, in particular, in contexts that proved the least favourable for the given construction. Such contexts would include, for instance, the use of singular indefinite possessor referents in the s-genitive (*en flickas dröm* 'a girl's dream), or the use of human possessor referents in prepositional phrases (*huvudet på Lisa* 'Lisa's head', lit. 'the head on Lisa').

Thirdly, a study of other types of possessive constructions, in particular of predicative possession, in the historical corpus could reveal more with regard to the semantic notions of possession and the postulated dichotomy between the prototype and periphery in the concept of possession.

Finally, another issue worthy of a separate study is a comparative exploration of possessive prepositional phrases in Norwegian. Since the Norwegian possessive preposition is grammaticalized to a higher degree, studying the constraints on the use of PPs could provide an interesting comparison with the less grammaticalized prepositional constructions in Danish and Swedish.

Sources

The historical corpus

Danish

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ErL   Eriks Lov. In Johs Brøndum-Nielsen, Svend Aakjær, Erik Kroman, & Peter Skautrup, et al. (eds.), 1933–61, *Danmarks gamle Landskabslove med Kirkelovene I–VIII*. Den videnskabelige kildeudgave af middelalderlovene. Manuscript AM 455 12mo. https://tekstnet.dk/eriks-lov/1/4

FA   Fremmedartiklerne. In Holger F. Rørdam (ed.), *Ny Kirkehistoriske Samlinger, bind 4*, 1867–68, 231–243. Danmarkshistorien.dk: https://danmarkshistorien.dk/leksikon-og-kilder/vis/materiale/fremmedartiklerne-af-20-september-1569/

FO   Christoffer 3. af Bayerns forordning om landefred. In Aage Andersen (ed.), *Den Danske Rigslovgivning 1397–1513*, 1989. Danmarkshistorien.dk: https://danmarkshistorien.dk/leksikon-og-kilder/vis/materiale/christoffer-3-af-bayerns-forordning-om-landefred-1442/?no_cache=1

FOA   Frederik 2.s ordinans om ægteskabssager. In Vilhelm A. Secher, *Forordninger, recesser og andre kongelige breve, Danmarks lovgivning vedkommende, 1558–1660*, 1889, 276–296. Danmarkshistorien.dk: https://danmarkshistorien.dk/leksikon-og-kilder/vis/materiale/frederik-2s-ordinans-om-aegteskabssager-19-juni-1582/?no_cache=1

FOB   Forordning om Betlere. In *Kongel. Forordninger og Aabne Breve 1670–1683, Chr. den 5. bd. I, forordninger fra 1683 til 1684*, 932–937. Copenhagen: Sal. Cancellie-Raad Wielandts Bogtrykkerie. Danmarkshistorien.dk: https://danmarkshistorien.dk/leksikon-og-kilder/vis/materiale/forordning-om-betlere-5-maj-1683/?no_cache=1

FOKBB   Forordning Om Klædedragt, Bryllupper, Barseler og Giestebudde. In *Kong Christian den Femtes Forordninger Og andre Aabne Breve*, 885–897. Danmarkshistorien.dk: https://danmarkshistorien.dk/leksikon-og-kilder/vis/materiale/forordning-om-klaededragt-bryllupper-barseler-og-giestebudde-13-marts-1683/?no_cache=1

GD   *Gesta danorum på dansk*. 2015. Marita Akhøj Nielsen (ed.). Copenhagen: Det Danske Sprog- og Litteraturselskab. Manuscript C67. https://tekstnet.dk/gesta-danorum-c67/1

Jer	Af Jeronimi levned. Mariager legende-Håndskrift. In Gunnar Knudsen (ed.), *Samfund til Udgivelse af gammel nordisk Litteratur*, 1917–30. Copenhagen: S. L. Møllers Bogtrykkeri. Manuscript Gl. kgl. Saml. 1586 4to.
Jesu	*Jesu Barndoms Bog*. 2015. Simon Skovgaard Boeck (ed.). Copenhagen: Det Danske Sprog- og Litteraturselskab. Based on Gotfred af Ghemen's print of *Jesu Barndomsbog* (Copenhagen 1508). https://tekstnet.dk/jesu-barndomsbog/metadata
Kat	Af Katherine legende. Mariager legende-Håndskrift. In Gunnar Knudsen (ed.), *Samfund til Udgivelse af gammel nordisk Litteratur*, 1917–30. Copenhagen: S. L. Møllers Bogtrykkeri. Manuscript Gl. kgl. Saml. 1586 4to.
Kerst	Aff Sancte Kerstine hennis pyne. In Carl J. Brandt (ed.), *De hellige Kvinder, en Legende-Samling*, 1859, 38–51. Copenhagen. Manuscript Cod. Holm. K4.
KM	*Karl Magnus Krønike*. In Poul Lindegård Hjorth (ed.), *Udg. for Universitets-Jubilæets Danske Samfund*, 1960, 138–170. Copenhagen: J. H. Schultz Forlag. https://cst.dk/dighumlab/duds/DSST/XML/KM1480.xml
KO	Kirkeordinansen. In Holger F. Rørdam, *Danske kirkelove samt udvalg af andre bestemmelser vedrørende kirken, skolen og de fattiges forsørgelse fra Reformationen indtil Christian V's Danske Lov, 1536–1683*, 1883, 40–133. Danmarkshistorien.dk: https://danmarkshistorien.dk/leksikon-og-kilder/vis/materiale/kirkeordinansen-14-juni-1539/
Mar	Aff Sancta Marina. In Carl J. Brandt (ed.), *De hellige Kvinder, en Legende-Samling*, 1859, 88–91. Copenhagen. Manuscript Cod. Holm. K4.
MK	*Mariaklagen efter et runeskrevet Haandskrift-Fragment i Stockholms Kgl. Bibliotek*. 1929. Johs Brøndum-Nielsen & Aage Rohmann (eds.). Copenhagen. Manuscript Cod. Holm. A120.
ML	Marialegende. In Paul Diderichsen (ed.), *Fragmenter af gammeldanske Haandskrifter*, 1931–37. Copenhagen. Manuscript K 48. https://tekstnet.dk/legendefragmenter-k48/metadata
OG	Om Ove Gieddes ekspedition til Ceylon og Tranquebar 1618–1622. In Johann H. Schlegel (ed), *Samlung zur Dänische Geschichte, Münzkenntniss, Oekonomie und Sprache I*, vol. 2. Danmarkshistorien.dk: https://danmarkshistorien.dk/leksikon-og-kilder/vis/materiale/om-ove-gieddes-ekspedition-til-ceylon-og-trankebar-1618-1622/?no_cache=1
PH	Uddrag af Poul Helgesens Skibbykrønike: om Herredagen i 1533 og retssagen mod Hans Tausen. In *Lektor Povl Helgesens historiske Optegnelsesbog sædvanlig kaldet Skibykrøniken*, 1890–91, 159–166. Copenhagen: A. Heise. Danmarkshistorien.dk: https://danmarkshistorien.dk/leksikon-og-kilder/vis/materiale/uddrag-af-poul-helgesens-skibbykroenike-om-herredagen-1533-og-retssagen-mod-hans-tausen/
Pouel	Huoel Sancte Pouel vort pint. In Carl J. Brandt (ed.). *De hellige Kvinder, en Legende-Samling*, 1859, 24–28. Copenhagen. Manuscript Cod. Holm. K4.
RAJ	Fundats for Roskilde adelige Jomfrukloster. In Louis Bobé, *Roskilde adelige Jomfrukloster 1699–1899/Til Minde om Klostrets tohundredaarige Bestaaen*, 1899. Roskilde: Foranstaltning af Patronatet. Danmarkshistorien.dk:

	https://danmarkshistorien.dk/leksikon-og-kilder/vis/materiale/fundats-for-roskilde-adelige-jomfrukloster-1699/
SB	*Skriftemålsbøn*. 2015. Marita Akhøj Nielsen (ed.). Copenhagen: Det Danske Sprog- og Litteraturselskab. Manuscript K 48. https://tekstnet.dk/skriftemaalsboen/metadata
SKL	*Skånske Kirkelov*. 2015. Simon Skovgaard Boeck (ed.). Copenhagen: Det Danske Sprog- og Litteraturselskab. Manuscript AM 28, 8vo. https://tekstnet.dk/skaanske-kirkelov-am28/metadata
SL	Skånelagen. In Carl J. Schlyter (ed.), *Samling af Sweriges gamla lagar*, vol. 9, 1859. Stockholm: Haeggström. Manuscript Holm B 76. Fornsvenska textbanken.
ST	*Sjalens trost*. 1937. Niels Nielsen (ed.). Copenhagen: J.H. Schultz Forlag, Udg. for Universitets-Jubilæets Danske Samfund. https://cst.dk/dighumlab/duds/DSST/XML/HOLMA109.xml
UCM	Confrontationen i Malmø. In Leonora Christina Ulfeldt, *Jammers Minde og andre selvbiografiske Skildringer*, 1949, 69–92. Johs Brøndum-Nielsen & C. O. Bøggild-Andersen (eds.). Rosenkilde og Bagger. Arkiv for Dansk Litteratur: https://tekster.kb.dk/text/adl-texts-leonora01-shoot-workid62047
URK	Rejsen til Korsør. Leonora Christina Ulfeldt, *Jammers Minde og andre selvbiografiske Skildringer*, 1949, 55–68. Johs Brøndum-Nielsen & C. O. Bøggild-Andersen (eds.). Rosenkilde og Bagger. Arkiv for Dansk Litteratur: https://tekster.kb.dk/text/adl-texts-leonora01-shoot-workid59352
VL	*Valdemars Lov*. 2015. Simon Skovgaard Boeck (ed.). Copenhagen: Det Danske Sprog- og Litteraturselskab. Manuscript AM 455, 12mo. https://tekstnet.dk/valdemars-lov/metadata

Swedish

AH	Agneta Horns levnadsbeskrivning. In Gösta Holms (ed.), *Agneta Horn: Beskrivning över min vandringstid*, 1959. Uppsala: Nordiska texter och undersökningar 20.
Arn	*Arndt, En sann christendom: Om kärlekens fruchter*. 1647. Johan Arndt. Fornsvenska textbanken: https://project2.sol.lu.se/fornsvenska/Nysvenska/C.R30.A-Arndt.html
AV	Anna Vasas brev. In Jarosław Dumanowski, Piotr Garbacz, Wojciech Krawczuk, & Ola Svensson (eds.), *Anna Vasas brev till familjen Gyllenstierna 1591–1612*, 2002. Sztafeta.
AVL	Äldre Västgötalagen. In Hans S. Collin & Carl J. Schlyter (eds.), *Samling af Sweriges gamla lagar*, Vol. 1, 1827. Stockholm: Haeggström. Manuscript Holm B 59.
Bur	Codex Bureanus. In George Stephens (ed.), *Ett fornsvenskt legendarium*, 1847. Stockholm: Norstedts. Manuscript Holm A 34.

CCG	Carl Carlsson Gyllenhielms anteckningar. In Johan A. Almquist, *Carl Carlsson Gyllenhielm: Egenhändige anteckningar rörande tiden 1597–1601*, 1905. Stockholm: Historiska handlingar 20.
Did	*Sagan om Didrik af Bern*. 1850–54. Gunnar O. Hyltén-Cavallius (ed.). Stockholm: Norstedts. Manuscript Skokloster 115, 116 HAND A.
DL	Dalalagen. In Hans S. Collin & Carl J. Schlyter (eds.), *Samling af Sweriges gamla lagar*, Vol. 5, 1827. Stockholm: Haeggström. Manuscript Holm B 54.
HML	Helga manna leverne. In Gustaf E. Klemming (ed.), *Klosterläsning*, 1877–78. Stockholm: Norstedts. Manuscript Holm A 110 (Codex Oxenstierna).
HS	Haqvin Spegel: Dagbok. In Sune Hildebrand (ed.), *Hakvin Spegels Dagbok*, 1923. Stockholm: Norstedts.
Jart	Järteckensboken. In Gustaf E. Klemming (ed.), *Klosterläsning*, 1877–78. Stockholm: Norstedts. Manuscript Holm A 110 (Codex Oxenstierna).
JS	Jon Stålhammars brev. In *Karolinska krigares dagböcker VII. Jon Stålhammars brev till hustrun Sofia Drake*, 1903. Lund.
KM	Karl Magnus. In Gustaf E. Klemming (ed.), *Prosadikter från Sveriges medeltid*, 1887–89. Stockholm: Norstedts. Manuscript Holm D 4.
Linc	Linköpingslegendariet: Legenden om Sankt Amalberga. In George Stephens (ed.), *Ett fornsvenskt legendarium*, 1847. Stockholm: Norstedts. Manuscript Linc B 70a.
OgL	Östgötalagen. In Hans S. Collin & Carl J. Schlyter (eds.), *Samling af Sweriges gamla lagar*, Vol. 2, 1827. Stockholm: Haeggström. Manuscript Holm B 50.
OP	Olaus Petri krönika. In Jöran Sahlgren (ed.), *Samlade Skrifter af Olavus Petri, Fjärde bandet*, 1917. Uppsala: Sveriges Kristliga Studentrörelses förlag.
Pent	Pentateukparafrasen. In Olof Thorell (ed.), *Fem Möseböcker på fornsvenska*, 1955. Uppsala: Almqvist & Wiksell. Manuscript Codex Thott (Köpenhamn).
PS	Peder Swarts krönika. In Nils Eden (ed.), *Konung Gustaf I:s krönika*, 1912. Stockholm.
ST	*Själens tröst: Tio Guds bud förklarade genom legender, berättelser och exempel*. 1873. Gustaf E. Klemming (ed.). Stockholm: Norstedts. Manuscript Holm A 108.
SVM	Sju vise mästare. In Gustaf E. Klemming (ed.), *Prosadikter från Sveriges medeltid*, 1887–89. Stockholm: Norstedts. Manuscript Holm D 4.
Troja	*Historia Trojana*. 1892. Robert Geete (ed.). Stockholm: Norstedts. Manuscript Holm D 3a.
UH	Urban Hiärne: Stratonice. In Magnus von Platen (ed.), *Urban Hiärne: Stratonice*, 1952. Stockholm.

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Danish

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Summary in Polish. Streszczenie w języku polskim

Wyrażenia dzierżawcze w językach duńskim i szwedzkim w ujęciu diachronicznym i synchronicznym

Cel pracy

Przedmiotem rozprawy są nominalne wyrażenia dzierżawcze w językach duńskim i szwedzkim analizowane w ujęciu diachronicznym i synchronicznym. Do analizowanych w dysertacji konstrukcji dzierżawczych należą: dopełniacz -s (nazywany też s-genitivem, np. *Annas hus* 'dom Anny'), konstrukcja dzierżawcza z przyimkami (*tornet på kyrkan* 'wieża kościoła', dosłownie: 'wieża na kościele') zaimki dzierżawcze zwykłe (*hennes hus* 'jej dom') oraz zwrotne (*sitt hus* 'swój dom'). Głównym celem naukowym projektu jest zbadanie dystrybucji oraz cech charakterystycznych wymienionych konstrukcji dzierżawczych ze szczególnym uwzględnieniem czynników, które mogą wpływać na wybór danej konstrukcji. Dopełniacz -s i konstrukcja przyimkowa mogą być do pewnego stopnia używane wymiennie we współczesnych językach duńskim i szwedzkim (por. duńskie przykłady: *Danmarks statsminister* lub *statsministeren i Danmark* 'premier Danii'). Kiedy dwie konstrukcje używane są w tej samej funkcji, w tym przypadku w celu sygnalizowania relacji dzierżawczej między referentami wyrażonymi w grupach nominalnych, różne czynniki mogą wpływać na wybór jednej z konstrukcji. Czynniki te mogą być w swojej naturze fonologiczne, morfologiczne, syntaktyczne, semantyczne, pragmatyczne lub nawet stylistyczne. Celem niniejszej dysertacji jest zbadanie jakie czynniki wpływają na wybór między dopełniaczem -s a konstrukcją przyimkową w językach duńskim i szwedzkim.

Tło teoretyczne dysertacji opiera się na założeniach Gramatyki Funkcjonalnej (Halliday 1970; 1973; Dik 1978; Siewierska 1991; Givón 1995a; 2001; Halliday & Matthiessen 2004). Główne założenia Gramatyki Funkcjonalnej to: (1) struktura językowa służy kognitywnym i komunikacyjnym funkcjom; (2) struktura nie jest arbitralna, jest motywowana i ikoniczna; oraz (3) zmienność i zróżnicowanie struktury są wszechobecne (Givón 1995a: 9). Z powyższych założeń, drugie jest szczególnie ważne przy badaniu zróżnicowania struktur dzierżawczych, ponieważ odwołuje się do idei, że strukturą języka rządzą pewne czynniki językowe i pozajęzykowe. Wśród czynników najczęściej wskazywanych w badaniach nad angielskimi konstrukcjami dzierżawczymi są żywotność, topikalność, długość (lub waga) grupy nominalnej oraz rodzaj relacji dzierżawczej.

Na podstawie tych czynników oraz na podstawie założeń Gramatyki Funkcjonalnej, możemy zidentyfikować czynniki, które potencjalnie mogą mieć wpływ na wybór między dopełniaczem -s a konstrukcją przyimkową w językach duńskim i szwedzkim. Do czynników analizowanych w niniejszej dysertacji należą:

– w stosunku do grupy posesora: żywotność, określoność, topikalność oraz liczba, policzalność i abstrakcyjność;

– w stosunku do całej konstrukcji dzierżawczej: typ relacji dzierżawczej, długość grupy nominalnej (zarówno grupy nazywającej posesora, jak i nadrzędnika, tj. posesum), gatunek i rejestr tekstu.

Badanie tych czynników, jak i historycznego rozwoju wspomnianych konstrukcji dzierżawczych, opiera się o następujące hipotezy badawcze:

A. Użycie konstrukcji dzierżawczych nie jest arbitralne, a zależne od szeregu wzajemnie wpływających na siebie czynników.

B. Czynniki wpływające na użycie konstrukcji dzierżawczych zmieniają się w czasie.

C. W tekstach historycznych nominalne konstrukcje dzierżawcze używane są częściej do wyrażania prototypowych pojęć dzierżawczych niż do wyrażania bardziej marginalnych pojęć. Zakres użycia konstrukcji dzierżawczych rozwija się zatem od prototypu do peryferii.

Zróżnicowanie w nominalnych strukturach dzierżwczych zostało bardzo szeroko zbadane i opisane na gruncie języka angielskiego (Altenberg 1982; Jucker 1993; Rosenbach 2002; 2003; 2005; 2008; 2017; Kreyer 2003; Hinrichs & Szmrecsanyi 2007). Zjawisko to nie zostało jednak dotychczas zbadane na gruncie języków skandynawskich. Konstrukcja z dopełniaczem -s i jej rozwój w historii języków duńskiego i szwedzkiego została kompleksowo przeanalizowana (zob. Delsing 1991; 2001; Norde 1997; 2006; 2011; 2013; Börjars 2003; Piotrowska 2017; 2018a dla języka szwedzkiego; zob. Herslund 2001; Heltoft 2010; Perridon 2013 dla języka duńskiego), tymczasem konstrukcja dzierżawcza z przyimkami i jej rozwój nie cieszą się podobnym zainteresowaniem badaczy. Poniższa dysertacja ma na celu uzupełnienie wyżej wspomnianej luki w badaniach nad nominalnymi wyrażeniami dzierżawczymi w językach skandynawskich.

Rozprawa podzielona jest na siedem rozdziałów. W rozdziale pierwszym przedstawione zostało ogólne wprowadzenie oraz cele i hipotezy badawcze dysertacji. Rozdział drugi stanowi przegląd literatury i poprzednich badań nad dzierżawczością w języku w ujęciu typologicznym. W rozdziale tym przedstawione są definicje dzierżawczości, różne typy relacji dzierżawczych oraz szereg przykładów konstrukcji dzierżawczych, zarówno nominalnych, jak i predykatywnych, w językach świata. W rozdziale trzecim zaprezentowano przegląd nominalnych konstrukcji dzierżawczych będących w użyciu w językach duńskim i szwedzkim, zarówno w standardowych wersjach tych języków, jak i ich odmianach dialektalnych. W rozdziale czwartym zaprezentowane zostały kwestie metodologiczne dysertacji, tj. najważniejsze założenia Gramatyki Funkcjonalnej ze szczególnym uwzględnieniem hierarchii żywotności, ikonicznej i ekonomicznej motywacji w języku oraz topikalności. W tym samym rozdziale szczegółowo omówione zostały również korpusy wykorzystane do badań, przyjęte zasady anotacji oraz wykorzystane w dysertacji testy statystyczne. Rozdziały piąty i szósty prezentują wyniki badań. W rozdziale piątym omówione zostały wyniki analizy duńskich i szwedzkich tekstów historycznych (1250–1700), ze szczególnym uwzględnieniem ogólnej dystrybucji konstrukcji dzierżawczych oraz czynników wpływających na użycie dopełniacza -s. W rozdziale szóstym omówione zostały

wyniki analizy współczesnych tekstów duńskich i szwedzkich (tj. tekstów literackich, prasowych oraz blogów). Korzystając z modeli statystycznych opartych na regresji logistycznej, zidentyfikowane zostały czynniki, które mają największy wpływ na wybór między dopełniaczem -s a konstrukcją przyimkową. Rozdział siódmy zawiera podsumowanie i omówienie najważniejszych wyników oraz perspektywy dalszych badań.

Metodologia

Jak wcześniej wspomniano, tło teoretyczne dysertacji opiera się na Gramatyce Funkcjonalnej (Functional Grammar). Główną przesłanką Gramatyki Funkcjonalnej jest kontekstualna definicja gramatyki, według której konstrukcje gramatyczne i rządzące nimi reguły nie powstają w pustce, niezależnie od kontekstu, ale są z konieczności formowane w odniesieniu do szerszego kontekstu pragmatycznego oraz funkcji, które pełnią. W ujęciu funkcjonalnym język postrzegany jest jako narzędzie interakcji społecznej, które służy nawiązywaniu komunikacji. Co więcej, na zasady składniowe i formę konstrukcji wpływa sposób zastosowania i ostateczne przeznaczenie danej konstrukcji. Sposób użycia języka kształtuje jego formę. Zastosowana w dysertacji metodologia wpisuje się w funkcjonalne podejście do języka; należy jednak wspomnieć, że Gramatyka Funkcjonalna dzieli swoje założenia zarówno z Gramatyką Konstrukcji (Construction Grammar, CxG), jak i Językoznawstwem Kognitywnym (Cognitive Linguistics), które może być uznane za nurt nadrzędny w stosunku do Gramatyki Funkcjonalnej. W niniejszej dysertacji szczególny nacisk położony jest na następujące pojęcia wpisujące się w podejście funkcjonalne: znaczenie hierarchii i prototypów w kategoryzacji pojęć, motywację ikoniczną i ekonomiczną w języku oraz rolę struktury informacyjnej zdania.

Jednym z najważniejszych założeń metodologicznych w niniejszej pracy jest podział relacji dzierżawczych na prototypowe i peryferyjne (Langacker 1995; Taylor 1995). Prototypowe relacje dzierżawcze to takie, w których referent posiadający (posesor) i referent posiadany (posesum) występują w stosunkowo trwałej relacji, w której posesor sprawuję kontrolę nad posesum. Są to najbardziej uniwersalne relacje dzierżawcze takie jak relacja własności (np. dom Anny), relacja część–całość (np. ręka Anny) oraz relacja pokrewieństwa (np. siostra Anny). Pozostałe relacje, w których referent posiadający często jest nieżywotny, określa się jako relacje peryferyjne. Są to między innymi relacje lokatywne (np. ulice Sztokholmu), relacje kontroli (np. autobus Anny), relacje atrybutywne (np. złość Anny), czy relacje abstrakcyjne (np. przyjazd pociągu). W stosunku do relacji semantycznych wyrażanych w konstrukcjach dzierżawczych ważne są również pojęcia ikoniczności i ekonomii w języku (Haiman 1983; Givón 1995b). W niniejszej dysertacji konstrukcje dzierżawcze uważane są za ikoniczne, jeśli ukazują bliski związek między posesorem a posesum (np. relacje pokrewieństwa czy relacje część–całość). Konstrukcje dzierżawcze, które są ekonomiczne, są łatwiejsze do przetwarzania (np. takie, w których znana informacja pojawia się przed nową informacją lub takie, w których dłuższy człon występuje jako drugi we frazie).

Kolejnymi wykorzystywanymi w analizie narzędziami są skala żywotności (Silverstein 1976; Rosenbach 2008) oraz pojęcie topikalności (Siewierska 1991). Skala żywotności dzieli referentów na: ludzi, byty abstrakcyjne (np. diabeł, anioł), zwierzęta, byty

kolektywne (np. firma, partia), byty temporalne, lokatywne oraz nieżywotne. Tak szczegółowy podział zastosowany został ze względu na poprzednie badania nad językami angielskim i szwedzkim, z których wynika, że dopełniacz -s częściej używany jest z referentami temporalnymi i lokatywnymi (np. *måndagens tidning* 'poniedziałkowa gazeta') niż nieżywotnymi (Koptjevskaja-Tamm 2002b; Rosenbach 2002). W stosunku do topikalności referentów zastosowany został podział *znany – nowy*; przy czym znany referent to taki, który został wcześniej wspomniany w tekście, a nowy referent to taki, który nie był wspomniany i nie ma żadnych koreferencyjnych grup nominalnych.

Analizy przedstawione w rozdziałach piątym i szóstym opierają się na korpusach tekstów. Pierwszy z nich to korpus historycznych tekstów duńskich i szwedzkich spisanych w latach 1250–1700. Okres ten obejmuje dwie epoki w rozwoju języków, tj. epoki staroduńską i staroszwedzką (odpowiednio *gammeldansk* i *fornsvenska*) oraz epoki nowoduńską i nowoszwedzką (odpowiednio *nydansk* i *nysvenska*). Większość tekstów historycznych została skompilowana i anotowana na potrzeby projektu badawczego „Diachrony of article systems in Scandinavian languages" (Skrzypek, Piotrowska & Jaworski 2021). Teksty w korpusie historycznym reprezentują trzy gatunki, tj. teksty prawne, teksty religijne oraz teksty prozatorskie. Teksty prawne stanowią najstarsze zachowane źródła spisane w językach duńskim i szwedzkim w alfabecie łacińskim; są to teksty rodzime dla tego rejonu Skandynawii. Teksty religijne i prozatorskie z tego okresu były głównie adaptowane z języków niemieckiego lub łacińskiego. Korpus tekstów historycznych liczy 123 716 słów. Analizowany materiał to 4 000 konstrukcji dzierżawczych (2 000 w tekstach duńskich i 2 000 w tekstach szwedzkich). Korpus tekstów współczesnych został w całości stworzony na potrzeby niniejszego projektu badawczego. Obejmuje on współczesne teksty literackie, prasowe oraz notatki blogowe napisane w językach duńskim i szwedzkim. Trzy różne rejestry tekstów zostały wybrane po to, aby zapewnić różnorodność w użyciu języka oraz by sprawdzić, czy istnieją różnice w dystrybucji nominalnych konstrukcji dzierżawczych w tekstach o różnym rejestrze. Teksty zostały napisane w latach 2011–2019, zostały one dobrane przypadkowo na podstawie wyszukiwań w przeglądarce internetowej. Teksty literackie dobrane zostały wśród książek elektronicznych (e-booków) dostępnych w księgarniach internetowych Saxo.com (książki duńskie) oraz Bokus.com (książki szwedzkie). Teksty prasowe wybrane zostały z tekstów dostępnych w formule open access z czasopism takich jak *Berlingske*, *Videnskab*, *Ekstra Bladet* (czasopisma duńskie) oraz *Aftonbladet*, *Expressen*, *Dagens Nyheter*, *Forskning och framsteg*, *Språkbruk* (czasopisma szwedzkie). Notatki blogowe zostały dobrane na podstawie wyszukiwań w przeglądarce internetowej oraz na podstawie list najpopularniejszych blogów w danym języku. Korpus tekstów współczesnych liczy 190 935 słów. Analizowany materiał to 4 577 konstrukcji dzierżawczych (2 480 w tekstach duńskich i 2 097 w tekstach szwedzkich). Zebrane konstrukcje dzierżawcze (tj. przykłady z dopełniaczem -s, konstrukcją przyimkową oraz zaimkami dzierżawczymi) zostały ręcznie anotowane w programie *DiaPoss* stworzonym na potrzeby projektu. Program ten umożliwia przechowywanie danych, anotację oraz generowanie prostych statystyk. Anotacja wybranych elementów jest wielopoziomowa – użytkownik definiuje i wybiera poziomy anotacji, czyli czynniki takie jak: rodzaj konstrukcji dzierżawczej, typ relacji dzierżawczej, żywotność, określoność, topikalność itd. W ramach podanych czynników użytkownik definiuje poszczególne tagi, np. referent ludzki, kolektywny, lokatywny,

nieżywotny itp., co ułatwia późniejsze sortowanie danych i generowanie statystyk. Przy analizie materiału użyty wykorzystany został szereg testów statystycznych, które umożliwiają rozpoznanie relacji (o ile taka zachodzi) między danym czynnikiem a wyborem konstrukcji dzierżawczej. Dzięki takim testom jak test niezależności chi-kwadrat (*chi-square test of independence*), regresja logistyczna (*binary logistic regression*) czy analiza drzew klasyfikacyjnych (*Classification and Regression Tree Analysis*) możemy odpowiedzieć na pytanie, w jaki sposób dany czynnik (np. żywotność lub określoność posesora) wpływają na wybór dopełniacza -s w porównaniu z konstrukcją przyimkową.

Wyniki badań – korpus tekstów historycznych

Dane uzyskane z korpusu duńskich i szwedzkich tekstów spisanych w latach 1250–1700 pozwoliły na analizę dystrybucji i charakterystyki użycia nominalnych konstrukcji dzierżawczych, w szczególności dopełniacza -s. Wyniki analizy omówione zostały w rozdziale piątym.

W pierwszej kolejności zbadana została pozycja referenta posiadającego (posesora) w konstrukcji z dopełniaczem oraz w konstrukcji zaimkowej. Współczesna prenominalna pozycja przydawek w dopełniaczu jest już w dużej mierze utrwalona już w pierwszym badanym okresie (tj. 1250–1350), zarówno w języku duńskim, jak i szwedzkim. Jeśli chodzi o konstrukcje z zaimkami dzierżawczymi, zaimki regularne (np. *hennes hus* 'jej dom') są w większości prenominalne już w pierwszym okresie, w przeciwieństwie do zaimków zwrotnych, które występują najczęściej w pozycji postnominalnej (np. *huset sitt* 'dom swój'). Zarówno duńskie, jak i szwedzkie zaimki zwrotne funkcjonują raczej w roli przymiotników zaimkowych (ang. *adjectival pronouns*) w najstarszych tekstach, zwłaszcza przy oznaczaniu relacji pokrewieństwa (obowiązkowa pozycja prenominalna utrwalona zostaje najpóźniej w tej właśnie relacji dzierżawczej). W pierwszym badanym okresie zaimki zwrotne są w trakcie procesu reklasyfikacji – z funkcji przymiotnikowej otrzymują funkcję determinującą, która wymaga pozycji prenominalnej we współczesnym języku duńskim i szwedzkim. Proces ten przebiega bardzo szybko, jako że już w drugim badanym okresie (1350–1450) zaimki zwrotne są w większości prenominalne. Jeśli chodzi o konstrukcje przyimkowe (np. *tornet på kyrkan* 'wieża kościoła'), jest ich stosunkowo niewiele w korpusie tekstów historycznych. Konstrukcje te zaczynają pojawiać się w pierwszym okresie w języku szwedzkim (1250–1350), ale dopiero w drugim okresie w języku duńskim (1350–1450); ponadto, nie widać znaczących wzrostów w częstotliwości ich występowania. Przykłady dzierżawczych konstrukcji przyimkowych są głównie ograniczone do dzierżawczości lokatywnej (np. *konung aff saxaland* 'król Saksonii') lub relacji część–całość (np. *handen på hertigen* 'ręka księcia'); te ostatnie występują jednak wyłącznie w tekstach szwedzkich.

Po drugie, szczegółowo przeanalizowane zostały typy relacji wyrażane za pomocą nominalnych konstrukcji dzierżawczych. Z tekstów historycznych wynika, że konstrukcje, w których związek między referentami (posesorem i posesum) jest łatwy do przewidzenia, a odległość konceptualna między tymi referentami jest niewielka, do wyrażenia takiej relacji konieczne jest mniejsza ilość kodowania językowego. Takie przypadki, w szczególności relacja własności, relacja część–całość oraz relacje pokrewieństwa i ról społecznych, są najczęściej wyrażane za pomocą konstrukcji z zaimkami dzierżawczymi, a nie za pomocą

konstrukcji z dopełniaczem. Z drugiej strony, kiedy związek między referentami w relacji dzierżawczej jest mniej przewidywalny i mniej prototypowy (np. w przypadku dzierżawczości abstrakcyjnej, atrybutywnej czy lokatywnej), relacja dzierżawcza wyrażana jest za pomocą konstrukcji z dopełniaczem. Wyniki te pozostają zatem w zgodzie z ekonomiczną motywacją w języku.

W trzeciej części analizy nacisk położony został na konstrukcję z dopełniaczem -s i czynniki, które mogą wpływać na użycie tej struktury. Analiza ta potwierdza hipotezę, że użycie dopełniacza -s w języku staroduńskim i staroszwedzkim nie jest arbitralne, a zależy od szeregu semantycznych i pragmatycznych czynników (zob. wspomnianą wyżej Hipotezę A). Dopełniacz -s w tekstach historycznych wyraźnie faworyzuje referentów ludzkich, referentów w liczbie pojedynczej oraz referentów znanych (wspomnianych wcześniej w tekście) jako swoje przydawki (tj. posesorów). Ponadto, mimo że rodzajnik określony nie był w pełni zgramatykalizowany w najstarszych tekstach, wyraźnie widoczne jest dążenie do tego, aby posesor w dopełniaczu wyrażony był określoną grupą nominalną lub nazwą własną. Tak ukształtowana charakterystyka posesora w konstrukcji z dopełniaczem -s wskazuje na wybór referentów, którzy są najbardziej znani i dostępni (pod względem określoności i topikalności) oraz najbardziej prototypowi (pod względem typu relacji dzierżawczej). Prototypowe relacje dzierżawcze, takie jak relacja własności czy pokrewieństwa, nieodzownie muszą odnosić się do referentów ludzkich (a przynajmniej żywotnych). Jedną z podstawowych funkcji przydawek dzierżawczych jest funkcja punktu odniesienia (ang. *reference-point function*, zob. Langacker 1995), który służy do identyfikacji referenta posiadanego. Referent w roli posesora powinien być zatem możliwie najbardziej dostępny, aby ułatwić identyfikację referenta posiadanego. Referent, który jest ludzki, określony i znany najlepiej wypełnia tę rolę.

Jak wspomniano, konstrukcja przyimkowa okazała się występować stosunkowo rzadko w korpusie tekstów historycznych, co uniemożliwia systematyczne porównanie czynników wpływających na wybór między dopełniaczem -s a konstrukcją przyimkową. Niemniej jednak, przykłady z konstrukcją przyimkową wskazują, że konstrukcja ta występowała w tekstach historycznych niemal wyłącznie z posesorami nieżywotnymi, w szczególności w relacji lokatywnej (tj. relacji wskazującej na miejsce pochodzenia, np. *keyseren aff rom* 'cesarz Rzymu'). Tylko w tekstach szwedzkich znaleźć można pojedyncze przykłady z ludzkim posesorem w konstrukcji przyimkowej wyrażające relację część–całość.

Warto również dodać, że analizowane w rozdziale piątym dane nie sugerują żadnych znaczących różnic strukturalnych bądź semantycznych w użyciu konstrukcji dzierżawczych między językiem duńskim a szwedzkim. Jedyne różnice wynikają z częstotliwości użycia danej konstrukcji: w tekstach staroduńskich znacznie częściej używane są zaimki dzierżawcze, z kolei w tekstach szwedzkich częściej używane są konstrukcje przyimkowe. Różnice te wynikają jednak z charakterystyki tekstów i czynników pozajęzykowych, np. duńskie teksty prawne zawierają więcej odniesień do relacji pokrewieństwa, które częściej wyrażane są za pomocą zaimków dzierżawczych niż za pomocą dopełniacza w korpusie.

Wyniki badań – korpus tekstów współczesnych

W rozdziale szóstym omówione zostały wyniki analizy konstrukcji dzierżawczych występujących we współczesnych tekstach duńskich i szwedzkich. Główną tematyką

rozdziału jest zróżnicowanie nominalnych konstrukcji dzierżawczych, ze szczególnym uwzględnieniem czynników, które wpływają na wybór między dopełniaczem -s a konstrukcją przyimkową.

Po pierwsze, przeanalizowana została częstotliwość występowania danych konstrukcji. Największą różnicą między duńskimi a szwedzkimi tekstami jest frekwencja występowania konstrukcji przyimkowej. O ile konstrukcja ta używana jest niemal tak często, jak dopełniacz -s w tekstach szwedzkich (frazy przyimkowe stanowią 27% wszystkich konstrukcji dzierżawczych, a dopełniacz -s 32%), w tekstach duńskich frazy przyimkowe występują znacznie rzadziej (stanowią jedynie 10% wszystkich konstrukcji dzierżawczych, podczas gdy dopełniacz -s stanowi ok. 36%). Jednocześnie w tekstach duńskich znacznie częściej używane są zaimki dzierżawcze niż w tekstach szwedzkich. Różnice w częstotliwości występowania, w szczególności te dotyczące konstrukcji przyimkowej, wpływają w dużej mierze na wyniki analizy czynników wpływających na wybór danej konstrukcji. Podczas gdy pewne tendencje są bardzo wyraźnie zarysowane w korpusie tekstów szwedzkich, te same tendencje są znacznie mniej wyraźne lub nawet nieobecne w materiale duńskim.

Po drugie, podobnie jak przy korpusie tekstów historycznych, zbadano wybraną grupę czynników i ich relacje z daną konstrukcją dzierżawczą. Dzięki większej w stosunku do tekstów historycznych częstotliwości konstrukcji przyimkowych możliwe były porównania z dopełniaczem -s. Do analizowanych czynników należały: żywotność, określoność topikalność, typ relacji posiadania, a także liczba, policzalność, abstrakcyjność grupy nominalnej oraz rejestr tekstu. Za pomocą testów niezależności chi-kwadrat sprawdzono, czy w badanym materiale istnieje związek między każdym z tych czynników a wyborem konstrukcji dzierżawczej. Jedynie kilka czynników okazało się nie mieć wpływu na wybór między dopełniaczem -s a konstrukcją przyimkową, a mianowicie żywotność posesum, liczba, policzalność oraz rejestr. Pozostałe czynniki są wysoko skorelowane z wyborem danej konstrukcji dzierżawczej. Posesor w konstrukcji z dopełniaczem -s zarówno w tekstach duńskich, jak i szwedzkich jest najczęściej referentem ludzkim, określonym (bądź wyrażonym nazwą własną) i znanym. Ponadto, długość grupy nominalnej wyrażającej posesora liczona w sylabach również ma wpływ na wybór konstrukcji. Dopełniacz -s występuje najczęściej w kombinacji *krótki posesor – długie posesum* (np. *flickans bästa väninna* 'najlepsza przyjaciółka dziewczynki'). Konstrukcja przyimkowa natomiast najczęściej zawiera posesora, który jest nieżywotny, nieokreślony oraz nieznany (tj. referent wcześniej niewspomniany). Konstrukcja ta charakteryzuje się również dłuższą grupą nominalną wyrażającą posesora, tj. kombinacja *krótkie posesum – długi posesor* (np. *kungen av ett specifikt land* 'król konkretnego kraju'). Czynnik długości grupy nominalnej odzwierciedla motywację ekonomiczną w języku – duński i szwedzki to tzw. języki *right-branching*, w których podrzędniki oraz dłuższe, strukturalnie skomplikowane elementy w grupie składniowej występują po prawej stronie nadrzędnika. Zgodnie z motywacją ekonomiczną, dłuższe elementy występują na końcu konstrukcji dzierżawczej, aby ułatwić użytkownikom języka przetwarzanie informacji.

Ostatnia część rozdziału to analiza wieloczynnikowa. Każdy z czynników (tj. żywotność, określoność, topikalność itd.) omówiony został dotychczas oddzielnie. Analiza wieloczynnikowa z wykorzystaniem modelu regresji logistycznej pozwala na zmierzenie jednoczesnego wpływu wszystkich czynników na wybór konstrukcji z dopełniaczem -s oraz

na sprawdzenie, czy wpływ danego czynnika jest niezależny od pozostałych czynników. Wyniki te uzupełnione zostały analizą drzew klasyfikacyjnych, która pozwala na wizualizację danych w postaci wykresu oraz na zmierzenie, który z czynników ma największy wpływ na wybór między dopełniaczem -s a konstrukcją przyimkową. W materiale duńskim określoność posesora jest najbardziej istotnym czynnikiem, choć żywotność posesora oraz typ relacji dzierżawczej są niemal równie ważne. W materiale szwedzkim żywotność jest zdecydowanie najbardziej istotnym czynnikiem – ma znacznie silniejszy wpływ na wybór konstrukcji dzierżawczej niż pozostałe czynniki. Określoność, długość grupy nominalnej i topikalność również istotnie wpływają na wybór między dopełniaczem -s a konstrukcją przyimkową. Ukazano również, że wymienione czynniki są niezależne od siebie, z wyjątkiem typu relacji dzierżawczej, która w dużej mierze zależy od żywotności referenta. Jak wcześniej wspomniano, prototypowe pojęcia dzierżawczości z racji ich semantyki często konotują wyłącznie referentów ludzkich, jak np. relacja pokrewieństwa czy roli społecznej; z drugiej strony, bardziej peryferyjne typy relacji często konotują wyłącznie posesorów nieżywotnych, np. w relacji lokatywnej czy temporalnej.

Podsumowanie

Wyniki analizy konstrukcji dzierżawczych w duńskich i szwedzkich tekstach jednoznacznie wskazują na to, że konstrukcja z dopełniaczem -s i konstrukcja przyimkowa występują w znacznej mierze w dystrybucji komplementarnej. Podczas gdy dopełniacz -s najczęściej zawiera posesora, który jest ludzki, określony i znany, konstrukcja przyimkowa najczęściej zawiera posesora, który jest nieżywotny, nieokreślony i nieznany. Warto pamiętać jednak, że taki układ czynników jest jedynie najczęściej spotykanym, ale nie obligatoryjnym – dopełniacz -s również występuje z referentami nieżywotnymi i nieokreślonymi, konstrukcje przyimkowe również mogą zawierać referentów ludzkich i określonych.

Jeśli chodzi o konstrukcję przyimkową, która nie była dotychczas szczegółowo zbadana, w obu językach obserwujemy podobny rozwój. Konstrukcja, która w tekstach historycznych była używana jedynie marginalnie, w tekstach współczesnych używana jest ze znacznie większą częstotliwością. W porównaniu z korpusem tekstów historycznych częstotliwość użycia dzierżawczych fraz przyimkowych rośnie sześciokrotnie w tekstach duńskich i aż dziesięciokrotnie w tekstach szwedzkich. Niezależnie jednak od tego wspólnego rozwoju, największą różnicą między korpusem tekstów duńskich a szwedzkich pozostaje częstotliwość używania konstrukcji przyimkowej. Wydaje się, że wśród języków germańskich przyimki dzierżawcze są bardziej powszechne w językach zachodnich, w których konstrukcja ta ma dedykowany przyimek (jak w językach angielskim i niderlandzkim), a wśród północnogermańskich także w norweskim, w którym przyimek *til* 'do' jest znacznie bardziej wyspecjalizowany jako przyimek dzierżawczy niż duńskie i szwedzkie *af/av* 'od' (zob. Lødrup 2009; 2014). Spośród dwóch badanych w niniejszej dysertacji języków to w języku szwedzkim konstrukcja przyimkowa występuje częściej i używana jest w większym zakresie, być może właśnie pod wpływem języków zachodniogermańskich.

Na koniec warto powrócić do postawionych na początku dysertacji hipotez badawczych. Hipoteza A, która zakłada, że użycie konstrukcji dzierżawczych nie jest arbitralne i zależy od szeregu różnych czynników, została w pełni potwierdzona. Wybór

między dopełniaczem -s a konstrukcją przyimkową nie jest przypadkowy ani całkowicie wolny, ponieważ duży wpływ na użycie każdej z konstrukcji mają takie czynniki jak żywotność, określoność, topikalność, długość grupy nominalnej i typ relacji dzierżawczej. Hipoteza B, zakładająca, że czynniki wpływające na wybór danej konstrukcji zmieniają się w czasie, również została potwierdzona. Po pierwsze, zmienia się wpływ typu relacji dzierżawczej – podczas gdy w korpusie historycznym wszystkie z badanych relacji wyrażane były za pomocą dopełniacza -s lub zaimków dzierżawczych, w korpusie tekstów współczesnych konstrukcja przyimkowa przejmuje niemal całkowicie relacje lokatywne i częściowo relację część–całość. Po drugie, znacznej zmianie uległ czynnik żywotności – w tekstach historycznych większość (ponad 64%) konstrukcji dzierżawczych zawiera posesora żywotnego, podczas gdy w tekstach współczesnych większość (ponad 50%) zawiera posesora nieżywotnego. Wpływ na tę zmianę ma przede wszystkim rozwój konstrukcji przyimkowej, ale również zmiana, jaka zaszła w charakterystyce dopełniacza -s, który obecnie coraz częściej dopuszcza możliwość użycia posesora nieżywotnego. Ostatnia z hipotez, Hipoteza C, zakładająca, że rozwój nominalnych konstrukcji dzierżawczych przebiega od prototypu do peryferii, została jedynie częściowo potwierdzona w wyniku analizy. Faktycznie częstotliwość użycia nominalnych konstrukcji spada z prototypowymi relacjami, a rośnie z relacjami peryferyjnymi; jednak rozwój ten można zaobserwować jedynie w korpusach tekstów duńskich. Ponadto, czynniki pozajęzykowe, jak tematyka tekstów mogła mieć pośredni wpływ na taką dystrybucję. W tekstach szwedzkich już od pierwszego badanego okresu (1250–1350) konstrukcje nominalne są bardzo często używane do wyrażania peryferyjnych relacji dzierżawczych, takich jak dzierżawczość abstrakcyjna, atrybutywna czy lokatywna.