

Chapter 33

LFG and Scandinavian languages

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This chapter gives an overview of some of the LFG literature on the Scandinavian languages: Danish, Swedish, Norwegian, Icelandic and Faroese. LFG has been used to investigate these languages ever since the framework was launched in the eighties. Important work has been done by researchers both inside and outside Scandinavia.

1 Introduction to the Scandinavian languages

The North Germanic languages are referred to in English as the Scandinavian languages. The modern languages are usually divided into Mainland Scandinavian: Danish, Swedish¹ and Norwegian, and Insular Scandinavian: Icelandic and Faroese. The literature on Faroese is limited, and Icelandic will usually have to represent Insular Scandinavian in this chapter.

In Danish, Swedish and Norwegian, the term *skandinavisk* is often used in a different way, to denote only Danish, Swedish and Norwegian. The English use will be applied in this chapter.

Danish, Swedish and Norwegian are by and large mutually intelligible. When Danes, Swedes and Norwegians talk to each other, they can come a long way using their own language. Danish, Swedish and Norwegian are grammatically similar in many respects, but there are also differences that can be more or less subtle.

¹The variety spoken in Älvdalen in Sweden, known as *älvdalska* in Swedish, and Elfdalian or Övdalian in English, is often considered a separate language (Garbacz 2009). It has hardly been mentioned in the LFG literature, and it is not discussed in this chapter.



Mainland Scandinavian and Insular Scandinavian are not mutually intelligible. There are a number of grammatical differences. For example, morphological case on nouns and agreement on finite verbs can be found in Insular Scandinavian, but not in Mainland Scandinavian (except for relics in archaic dialects).

Older forms of the Scandinavian languages will be mentioned occasionally. In medieval times, the most important dividing line was between Eastern Scandinavian: Old Danish and Old Swedish, and Western Scandinavian: Old Norwegian and Old Icelandic. The latter two are sometimes referred to together as Old Norse.

There is an interesting LFG literature on various topics in the Scandinavian languages. For more general overviews of their syntax (independently of LFG), the following can be recommended: Faarlund (2004) on Old Norse, Thráinsson et al. (2004) on Faroese, Thráinsson (2007) on Icelandic, and Faarlund (2019) on Mainland Scandinavian.

2 C-structure phenomena

2.1 Basic sentence structure: V2

The architecture of LFG gives an excellent point of departure for studying c-structure. With parallel levels of representation, insights about c-structure can be obtained without necessarily involving the analysis of phenomena that could be argued to belong to other levels.

The Scandinavian languages have a relatively rigid word order, with the well known V2 requirement: the finite (auxiliary or main) verb must be in second position in main clauses.² This is a classical topic within various approaches to syntax.

Examples of V2 are (1) and (2).³ Example (1) has the subject in the initial position, while example (2) has an adverb in the initial position, and the subject following the finite verb.

- (1) Swedish (Sells 2001: 34)
Anna läste bok-en.
Anna read book-DEF
'Anna read the book.'

²The concept of finiteness is discussed and refined in Sells (2007) and Heintz (2012).

³The source of example sentences is indicated when available. Examples that do not indicate a source have been provided by the author.

- (2) Swedish (Sells 2001: 34, modified)
 Igår läste hon bok-en.
 Yesterday read she book-DEF
 ‘Yesterday she read the book.’

In Mainland Scandinavian, there is no V2 requirement in subordinate clauses. An example is (3).

- (3) Swedish
 Om Anna inte läser bok-en ...
 if Anna not reads book-DEF
 ‘If Anna doesn’t read the book ...’

Icelandic usually has V2 in subordinate clauses (Thráinsson 2007: 58–64), while Faroese subordinate clauses are in the process of changing from V2 to non-V2 (Heycock et al. 2012).

V2 was an important motivation for the field grammar that Paul Diderichsen proposed for Danish (Diderichsen 1946). His approach was later taken up by Ahrenberg (1992), who proposed an LFG-like system in which the c-structure is given in the format of a field grammar.

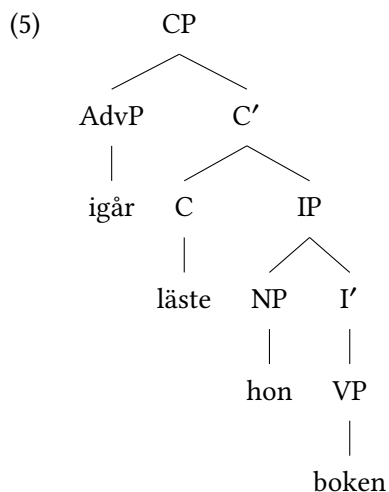
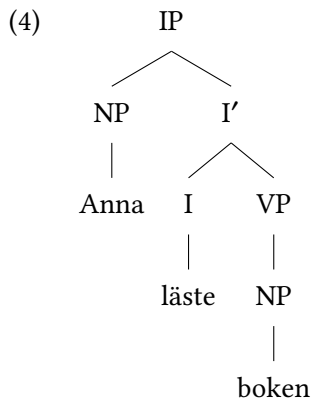
Functional categories were used in LFG from the nineties. They were inspired by work in the Principles and Parameters framework, but the architecture of LFG made a more restricted use possible. A common Principles and Parameters assumption was that all main clauses in Scandinavian have a CP - IP - VP structure, with C as the designated V2 position.

Sells (2001) is an important work on Swedish c-structure in LFG.⁴ The account proposed by Sells is based on the general principles that a subject is typically in SpecIP, and a constituent associated with a discourse function typically in SpecCP. He assumes that subject initial sentences are IPs (when the subject does not have a discourse function), while other sentences are CPs. This means that there is no designated V2 position – the finite verb is either in I or in C in main clauses.

This analysis might seem to allow sentences with more than one main verb. This is not the case, however. CP and IP are functional projections, which correspond to the same f-structure as VP, and this f-structure can only have one PRED.

⁴Sells (2001) includes a component with restrictions stated in Optimality Theory, like some of the work that proposes alternatives to his analysis (Börjars et al. 2003, Andréasson 2007, 2010). For simplicity, these aspects of the analyses are put aside here.

The c-structure trees for examples (1)–(2) are from Sells (2001: 34). Note that the tree for (1) is an IP with the finite verb in I, while the tree for (2) is a CP with the finite verb in C.



2.2 Object shift

Another c-structure phenomenon that has often been discussed is object shift in Mainland Scandinavian. Examples are (6)–(7).

- (6) Swedish (Sells 2001: 54)
 Anna såg den inte.
 Anna saw it not
 'Anna didn't see it.'

- (7) Swedish (Sells 2001: 54)
 Såg Anna den inte?
 saw Anna it not
 ‘Didn’t Anna see it?’

Object shift means that a weak pronominal object is not realized in the regular object position within the VP, but in a position closer to a finite main verb.⁵ It can then precede a sentence adverb, as in (6)–(7). Object shift requires that the main verb is not in the VP, but in a higher functional projection. This is often called “Holmberg’s generalization” (Holmberg 1999). When the non-finite main verb is in VP, as in (8), then object shift cannot apply.

- (8) Swedish
 Anna har inte sett den.
 Anna has not seen it
 ‘Anna has not seen it.’

Sells (2001: 54–56) assumes that a weak pronoun does not project in syntax. He assumes that a shifted pronoun adjoins to the I node. The adjunction is syntactic, and not morphological or phonological incorporation.

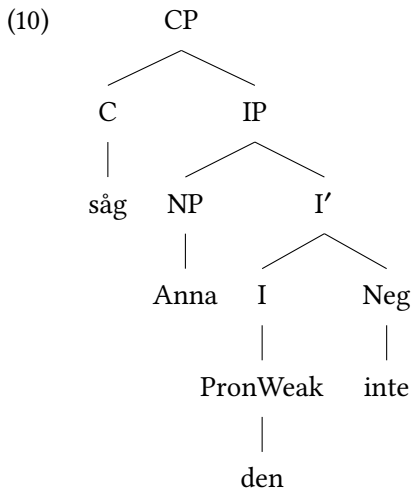
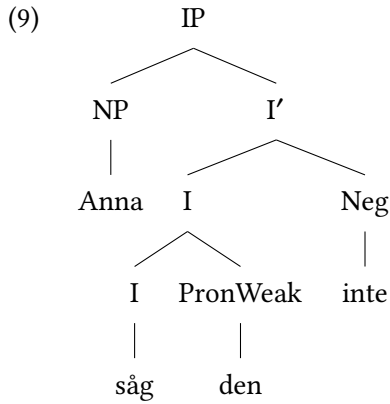
Below are the c-structure trees for (6)–(7), from Sells (2001: 62). The finite verb is in I, as in (9), or in the higher C position, as in (10). When the verb is in C, the pronoun is still under I, following the post-verbal subject.⁶ Negation and other sentence adverbs are under I’.⁷

⁵Icelandic also allows object shift with full nominal phrases (Thráinsson 2007: 31–37). This will not be discussed further here.

⁶The reader might find it strange that the pronoun is the only element under I when the verb is in C, as in (10). This follows from the adjunction rule $X \rightarrow X Y$, combined with the optionality of phrase structure nodes and an economy principle which requires “tree pruning”

⁷Negation is always expressed outside the VP. An interesting effect of this is that an argument with a negative quantifier cannot be inside VP, cf. the contrast (i)–(ii). This is discussed in Sells (2000) and Sells (2001: 93–101).

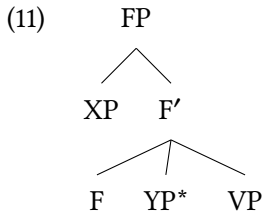
- (i) Swedish (Sells 2001: 93)
 Jag såg ingen.
 I saw nobody
 ‘I saw nobody.’
- (ii) Swedish (Sells 2001: 93)
 *Jag har sett ingen.
 I have seen nobody
 ‘I have seen nobody.’ [intended]



Restrictions on object shift have been discussed several times, see e.g. Andréasson (2008, 2010), Ørnsnes (2013), and Engdahl & Zaenen (2020).

2.3 How much hierarchy?

Some researchers have argued that the c-structure proposed by Sells is more hierarchical than necessary, and inconsistent with the principle of Economy of expression (see Bresnan et al. 2016: 90 for this principle). They propose a basic sentence structure with one functional category above VP. The head position of this functional category is then the V2 position. The category is called IP in Dyvik (2000) (on Norwegian), and FP – Finiteness Phrase – in Börjars et al. (2003) and Andréasson (2007, 2010) (on Swedish). The structure they propose is as in (11).



F is the position of the finite verb. An initial subject has the same position as an initial non-subject, namely SpecFP. In the middle field between F and the VP there can be a subject (when not in SpecFP), one or more sentence adverbs, and pronominal objects.

One motivation for this kind of structure is the relative flexibility of the constituent order in the middle field. Sentence adverbs can precede or follow the subject, conditioned by scope and information structure. Examples are (12), with the subject scoping over the sentence adverb, and (13), with the sentence adverb scoping over the subject.

(12) Swedish (Börjars et al. 2003: 54)

Då skulle alla grod-or-na antagligen dö.
 then should all frog-PL-DEF probably die
 ‘All the frogs should probably die then.’

(13) Swedish (Börjars et al. 2003: 54)

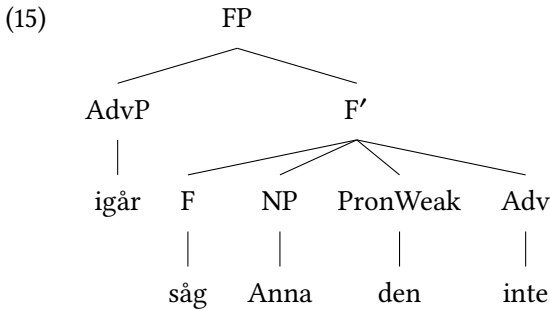
Då skulle antagligen alla grod-or-na dö.
 then should probably all frog-PL-DEF die
 ‘All the frogs should probably die then.’

Example (12), with the subject preceding the adverb, requires that frogs have been mentioned in the discourse. There is no such requirement in example (13), with the adverb preceding the subject.

With the FP analysis, a sentence with object shift such as (14) would have the c-structure tree (15).

(14) Swedish (Sells 2001: 54)

Igår såg Anna den inte.
 yesterday saw Anna it not
 ‘Yesterday, Anna didn’t see it.’



2.4 Is Icelandic different?

While the clausal hierarchy of Mainland Scandinavian has been discussed within LFG, there has been no parallel discussion of Insular Scandinavian. All newer LFG work on Icelandic seems to assume a c-structure that has one functional category above VP, e.g. Sells (2001: 190–92, 2003, 2005), Booth et al. (2017), Booth (2018). This analysis is also given for Old Norse in Kristoffersen (1996: 69). Icelandic then has the same basic structure that is assumed for Mainland Scandinavian in the work discussed in Section 2.3 above (the name of the functional projection aside).

Only Sells (2001: 190–92, 2003, 2005) assumes that Icelandic is different from Mainland Scandinavian concerning its basic sentence structure. His motivation seems to be that Icelandic differs from Mainland Scandinavian in being a “symmetric” V2 language with embedded V2. Sells here follows ideas from Diesing (1990), which cannot be discussed further in this context.

2.5 Expletives

The Scandinavian languages have several constructions that involve expletives. However, Icelandic expletives are very different from those of Mainland Scandinavian. Expletives in Mainland Scandinavian have the c-structure properties of subjects, preceding or following the finite verb in main clauses. Examples (16)–(17) show expletives preceding and following the finite verb.

- (16) Norwegian
 Det ble danset til midnatt.
 EXPL became danced to midnight
 ‘People danced until midnight.’

- (17) Norwegian
 Ble det danset til midnatt?
 became EXPL danced to midnight
 ‘Did people dance until midnight?’

Some Mainland Scandinavian varieties distinguish between expletive *det* ‘it’ and *der* ‘there’ in a way comparable to expletive *it* and *there* in English (Larsson 2014). This is the case in Danish and in some dialects of Swedish and Norwegian. Other varieties use only *det* ‘it’.

Icelandic also has one expletive only, namely *það* ‘it’ (see Booth 2018 for an LFG account of Icelandic expletives). This expletive can occur in the first position of the clause, but it cannot follow the finite verb. Examples are (18)–(19).

- (18) Icelandic (Thráinsson 2007: 310)
 Það var dansað til miðnættis.
 EXPL was danced to midnight
 ‘People danced until midnight.’
- (19) Icelandic (Thráinsson 2007: 312)
 Var (*það) dansað til miðnættis?
 was (*EXPL) danced to midnight
 ‘Did people dance until midnight?’

The position following the finite verb should be considered the basic subject position in Scandinavian main clauses, in the sense that only this position is reserved for subjects. The fact that the Icelandic expletive cannot occur there motivates the common view – inside and outside LFG – that it is not a subject.

Sells (2005) gives a different analysis in which the expletive is treated as a subject. He shows that the Icelandic expletive is not limited to the first position of a main clause. It can occur in the first position in an embedded clause. Some speakers also allow it as a raised subject in the subject-to-object raising construction, as in (20).

- (20) Icelandic (Thráinsson 1979: 481–2)
 Jón telur (það) vera mýs í baðker-inu.
 Jón believes EXPL be mice in bathtub-DEF
 ‘Jón believes there to be mice in the bathtub.’

In Sells' analysis, the expletive is a subject without a PRED. There can be another subject in the sentence, as in (21).

- (21) Icelandic (Thráinsson 2007: 327)
Það höfðu einhverjir stúdentar stolið smjör-inu.
EXPL had some students stolen butter-DEF
'Some students had stolen the butter.'

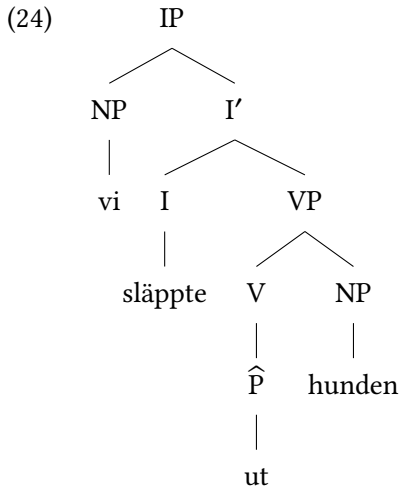
Both the expletive and the logical subject then map to subject in f-structure, where the expletive is only reflected by a feature such as [EXPL +] (see also Section 3.4).

2.6 Verbal particles

The Scandinavian languages differ as to the placement of verbal particles (Lundquist 2014d). Particles precede the object in Swedish, while they follow the object in Danish. Norwegian and Icelandic allow both word orders. Swedish and Danish examples are (22) and (23).

- (22) Swedish (Toivonen 2003: 160)
Vi släppte ut hund-en.
we let out dog-DEF
'We let the dog out.'
- (23) Danish (Toivonen 2003: 160)
Vi slap hund-en ud.
we let dog-DEF out
'We let the dog out.'

Toivonen (2003) discusses Swedish verbal particles. They precede the object, as mentioned. To be more exact, they follow the verb, and precede all other VP-internal constituents. Toivonen argues that these particles are non-projecting words in c-structure. They are adjoined to V, which explains the word order. The c-structure for (22) is then as in (24), where the "hat" on P means that it is non-projecting (Toivonen 2003: 21–22). Note that the finite verb is in I in (24).



It was mentioned above that the other Scandinavian languages are different with respect to the position of the particle. Toivonen proposes that Danish differs from Swedish in that words such as ‘out’ have a different status in Danish. They are prepositions that project a PP, and PPs generally follow objects.

Norwegian and Icelandic would be more difficult to account for within Toivonen’s proposal, since they allow particles to either precede or follow the object. The Norwegian situation is analysed in Dyvik et al. (2019). They consider particles a c-structure category, and particles can precede or follow the object. Particle verbs have lexical entries in which the verb and the particle are represented as one PRED. For example, the particle verb *skrive opp* ‘write up’ has the PRED (25).

(25) PRED ‘skrive*opp <<(↑SUBJ) (↑OBJ)>>’

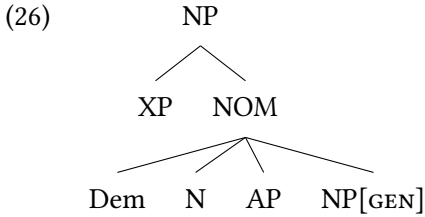
The presence of the relevant particle is secured by a requirement in the lexical entry of the particle verb. A constraining equation requires a feature contributed by the relevant particle. This equation is independent of the position of the particle in c-structure.

2.7 The structure of nominal phrases

Nominal phrases in modern Scandinavian have a rigid word order. Old Norse is very different, with free word order in nominal phrases.

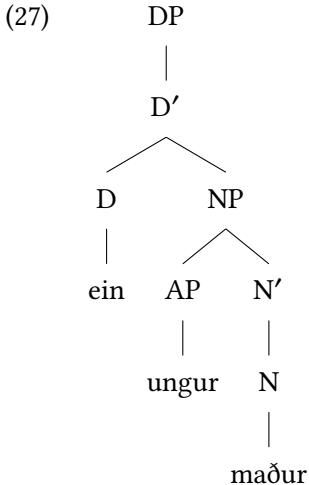
Börjars et al. (2016) study the development of nominal phrases from Old Norse to Modern Faroese. They argue that the Old Norse nominal phrase is a non-configurational NP. There are no syntactic constraints on word order, but the

first position is information structurally privileged. The rest of the phrase has a flat structure. They give the schematic c-structure tree (26) (Börjars et al. 2016: e17).



In Modern Faroese – as in the other modern Scandinavian languages – the word order is no longer free. The first position in a referential nominal phrase contains an element that marks it as \pm DEFINITE, such as an indefinite or definite article, a demonstrative, or a noun with the bound definiteness marker.

Börjars et al. (2016) argue that what has happened between Old Norse and Modern Faroese is that a category D has developed, which heads a DP. The c-structure tree for Modern Faroese *ein ungur maður* ‘a young man’ is then as in (27) (Börjars et al. 2016: e25).



This is a change from a non-configurational to a configurational nominal phrase.

2.8 Non-projecting possessive pronouns

Standard Swedish and Danish have one position for possessive pronouns in the nominal phrase, preceding the noun and AP (if any). In other Scandinavian vari-

eties, possessive pronouns in addition have the option of immediately following the noun. Examples are (28)–(29).

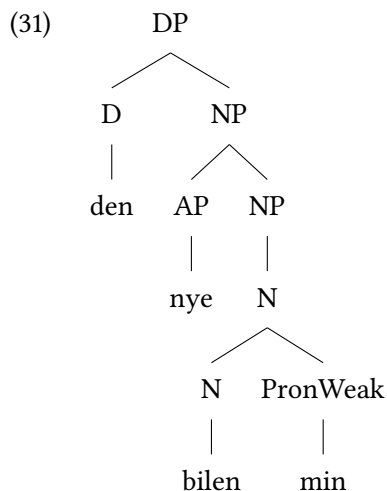
(28) Norwegian
 min ny-e bil
 my new-DEF car
 ‘my new car’

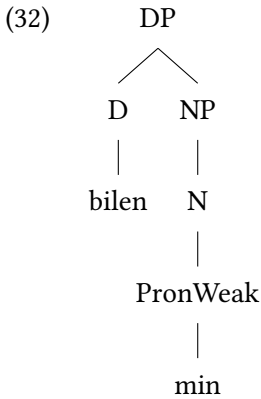
(29) Norwegian
 den ny-e bil-en min
 the new-DEF car-DEF my
 ‘my new car’

Lødrup (2011) gives a lexicalist analysis of postnominal possessive pronouns in Norwegian, where the main point is that they are non-projecting weak pronouns. They are adjoined to N in syntax, comparable to the weak object pronouns that are adjoined to I in Sells’ analysis (see Section 2.2). A noun preceding a possessive pronoun always has the definite form. The noun is either under N, as in (29), or in the higher head position D, as in (30) (following Hankamer & Mikkelsen 2002).

(30) Norwegian
 bil-en min
 car-DEF my
 ‘my car’

The c-structure trees for (29) and (30) are given in (31) and (32).





3 F-structure phenomena

3.1 Oblique subjects in Icelandic

The relation between morphological case and syntactic function is complicated in some languages. The situation in Icelandic has been the object of interesting discussion within different grammatical frameworks. Especially the fact that a number of verbs take an oblique (i.e. non-nominative) subject has been the topic of much attention. Some examples are (33)–(36).

- (33) Icelandic (Andrews 1982: 461)
Bát-inn rak á land.
boat-DEF.ACC drifted to land.ACC
'The boat drifted to shore.'

- (34) Icelandic (Andrews 1982: 461)
Dreng-ina vantar mat.
boys-DEF.ACC lack food.ACC
'The boys lack food.'

- (35) Icelandic (Andrews 1982: 462)
Barn-inu batnaði veik-in.
child-DEF.DAT recovered.from disease-DEF.NOM.
'The child recovered from the disease.'

- (36) Icelandic (Zaenen et al. 1985: 100)
 Henni hefur alltaf þótt Ólaf-ur leiðinleg-ur.
 she.DAT has always thought Ólaf-NOM boring-NOM
 ‘She has always found Ólaf boring.’

The verbs that take an oblique subject are all non-agentive. There are some tendencies concerning the correlation between verb meaning and subject case, but the option of an oblique subject must be seen as idiosyncratic. Important groundwork on oblique subjects was carried out within the framework of LFG. The very first mention of the phenomenon was in Andrews (1976); an LFG analysis was later proposed in Andrews (1982). His proposal is to treat an oblique subject in a way that resembles the treatment of a lexically selected preposition. There is an extra “layer” in their f-structure, in the sense that e.g. a dative subject is the value of the attribute DAT, and this f-structure is the value of SUBJ. Below is the simplified f-structure that Andrews (1982: 472) gives example (35).

- (37)
$$\left[\begin{array}{l} \text{PRED 'BATNA(SUBJ DAT,OBJ)'} \\ \text{SUBJ} \left[\begin{array}{l} \text{DAT} \left[\begin{array}{l} \text{PRED 'BARN'} \\ \text{CASE DAT} \\ \text{DEF +} \end{array} \right] \right] \\ \text{OBJ} \left[\begin{array}{l} \text{PRED 'VEIK'} \\ \text{DEF +} \end{array} \right] \end{array} \right]$$

One argument for this analysis is that an oblique subject doesn't trigger agreement the way a nominative subject does. Regular agreement is blocked by the extra layer. In sentences without a nominative argument, such as (33)–(34) above, the verb occurs in the default third person singular. In sentences with a nominative object, the object can agree with the verb. An example is (38), with a singular oblique subject and a plural nominative object that triggers agreement.

- (38) Icelandic (Thráinsson 2007: 156)
 Mér hafa alltaf leiðst þessir kjölturakk-ar.
 me.DAT have.PL always bored these poodle-NOM.PL
 ‘I have always found these poodles boring.’

Another classic article on non-nominative subjects is Zaenen et al. (1985), who discuss case-preservation in passive sentences. Consider (39)–(40).

- (39) Icelandic (Zaenen et al. 1985: 96)
 Ég hjálpaði honum.
 I helped him.DAT
 ‘I helped him.’

(40) Icelandic (Zaenen et al. 1985: 98)

Honum var hjálpað.

him.DAT was helped

‘He was helped.’

Zaenen et al. (1985) show how various syntactic criteria for subjecthood give evidence for non-nominative subjects in passive sentences such as (40). They also compare Icelandic to German. German has superficially similar sentences, but Zaenen et al. (1985) show that the non-nominative arguments in question do not show subject properties.

Zaenen et al. (1985) assume that idiosyncratic case is assigned to arguments at the level of a-structure. One important reason for this assumption is that idiosyncratic case is preserved independently of the syntactic function that realizes the argument position. It is not affected by valency alternations such as passive or raising, as can be seen in (40).

The diachrony of oblique subjects in Icelandic is discussed in Schätzle et al. (2015) and Booth et al. (2017).

3.2 Control and complementation in Icelandic

Control and complementation have been important research topics in LFG since Bresnan (1982a). These topics are intertwined in some ways. LFG distinguishes between two main types of control. One is anaphoric control of a PRO subject (an f-structure subject with a pronominal PRED). The other is functional control, in which the subordinate subject is structure shared with the subject or the object of the governing verb. Functional control is restricted in several ways. It is limited to complements with the function xCOMP and adjuncts with the function xADJ. This means that if an infinitive can be shown to have a syntactic function other than xCOMP or xADJ, control must be anaphoric.

Andrews (1982) assumes that finite *that*- and *wh*-clauses in Icelandic have the external syntactic properties of nominal phrases, realizing nominal syntactic functions such as subject and object (following Thráinsson 1979). Andrews argues that this is also true of infinitival clauses with the infinitival marker *að*. This analysis gives a prediction about how the subject of these infinitival clauses is controlled. Because they are subjects or objects, there must be anaphoric control of a PRO subject.

An interesting question is what case a PRO subject can have. Icelandic verbs can take oblique subjects, as was discussed in Section 3.1. One should expect, then, that PRO can be oblique when required by the infinitival verb. This expectation is true, as can be seen from example (41).

(41) Icelandic (Andrews 1982: 474)

Ég vonast til að vanta ekki ein-an í tím-anum.
 I.NOM hope toward to lack not alone-ACC in class-DEF
 ‘I hope not to be the only one missing from class.’

The main verb *vonast* ‘hope’ takes a regular nominative subject, while the infinitive *vanta* ‘lack’ requires an accusative subject. In (41), the case of PRO can be seen from the case on *einan* ‘alone.ACC’, which is an xADJ that agrees with the subject. If control were functional in (41), the accusative subject of *vanta* would have to structure share with the nominative subject of *vonast* ‘hope’. This would be impossible, however, because structure sharing shares all grammatical properties, and the values for CASE would be incompatible.

3.3 Control and complementation in Mainland Scandinavian

The function and control of complement clauses have also been discussed for Mainland Scandinavian. Dalrymple & Lødrup (2000) proposed that a finite complement is an object if it shares external syntactic properties with nominal objects, and a COMP if it doesn’t. (See Alsina et al. 2005 for criticism.)

Icelandic is a language with finite complements that are objects (see Section 3.2). Examples of languages that have both types of finite complements are English and Swedish (Dalrymple & Lødrup 2000). Norwegian also shows this split, even if object complements represent the dominant option (Lødrup 2004). For example, Norwegian *bevise* ‘prove’ takes a complement that alternates with a nominal phrase, and corresponds to a subject in the passive. Its complement is then assumed to be an object. The verb *anse* ‘consider’, on the other hand, takes a complement that lacks these properties, and it is therefore assumed to be a COMP. Examples (42)–(45) show the differences.

(42) Norwegian (Lødrup 2004: 65)

Han har endelig bevist [at jord-en er rund] / dette
 he has finally proved that earth-DEF is round / this
 ‘He has finally proved that the earth is round / this.’

(43) Norwegian (Lødrup 2004: 65)

[At jord-en er rund] er endelig blitt bevist.
 that earth-DEF is round is finally become proved
 ‘That the earth is round has finally been proved.’

- (44) Norwegian
Komitee-en anser [at fordel-ene oppveier
committee-DEF considers that advantage-PL.DEF compensate
ulemp-ene] / *dette
disadvantage-PL.DEF / this
'The committee considers that the advantages compensate for the
disadvantages / this.'
- (45) Norwegian
*[At fordel-ene oppveier ulemp-ene] blir
that advantage-PL.DEF compensate disadvantage-PL.DEF becomes
ansett.
considered

Lødrup (2004) shows that infinitival complements in Norwegian also show this split, with object complements as the dominant option. For example, the infinitival complement of *akseptere* 'accept' alternates with a nominal object, as shown in (46), and it corresponds to a subject in the passive, as shown in (47).

- (46) Norwegian (Lødrup 2004: 70, modified)
De har akseptert [å betale høyere skatt] / dette
they have accepted to pay higher tax / this
'They have accepted to pay higher taxes / this.'
- (47) Norwegian (Lødrup 2004: 71)
[Å betale høyere skatt] er blitt akseptert.
to pay higher tax is become accepted
'To pay higher taxes has been accepted.'

As for Icelandic (see Section 3.2), the object analysis implies that the infinitival complements have a PRO subject, and not functional control with structure sharing. In the active (46), the controller of the infinitival subject is the subject of *akseptere* 'accept'. In the passive (47), on the other hand, the infinitive has no controller. This situation rules out functional control, because there is nothing that the subject of the infinitive can structure share with. PRO, on the other hand, can do without a controller, so the infinitive must be assumed to have a PRO subject. A corresponding analysis of the Danish verb *forsøge* 'try' is given in Ørsnes (2006).

3.4 Subject vs object in presentational sentences

All the Scandinavian languages have what could be called a presentational construction, in which a verb takes an expletive and a so-called logical subject. Examples are (48) and (49).

(48) Norwegian

Det kom fire studenter på forelesning-en i går.
 EXPL came four students on class-DEF in yesterday
 ‘Four students came to class yesterday.’

(49) Icelandic (Thráinsson 2007: 310)

Það kom-u fjór-ir nemend-ur í tím-ann í gær.
 EXPL came-3PLUR four-NOM students-NOM.PL in class-DEF in yesterday
 ‘Four students came to class yesterday.’

The grammatical properties of the presentational construction are rather different in Mainland Scandinavian and Icelandic, and there is some discussion concerning its analysis.

For the Icelandic construction, there seems to be agreement that the logical subject is a grammatical subject. As mentioned in Section 2.5, Icelandic expletives are usually assumed not to be subjects. They can occur in first position, but not in the subject position following the finite verb, as shown in (50).

(50) Icelandic (Thráinsson 2007: 313)

Kom-u (*Það) fjór-ir nemend-ur í tím-ann í gær?
 came-3PLUR (EXPL) four-NOM student-NOM.PL in class-DEF in yesterday
 ‘Did four students come to class yesterday?’

However, Sells (2005) assumes that the expletive and the logical subject both map to subject in f-structure. The expletive has no PRED, and no other features that cannot unify with those of the logical subject. Its only reflex in f-structure is then a feature such as [EXPL +].

The Mainland Scandinavian presentational construction is rather different from the Icelandic one. The expletive can occur in all subject positions in c-structure, including the position following the finite verb, as shown in (51).

(51) Norwegian

Kom det fire studenter på forelesning-en i går?
 came EXPL four students on class-DEF in yesterday
 ‘Did four students come to class yesterday?’

The logical subject has the same c-structure position as a regular object. The grammatical status of the logical subject has been discussed several times, both inside and outside LFG. Lødrup (1999b, 2020) argues that it is an object in f-structure, following Askedal (1982), Platzack (1983) and others. This view has been criticized by Börjars & Vincent (2005), Zaenen et al. (2017), and Hellan & Beermann (2020). Börjars & Vincent (2005) propose the same kind of analysis for Swedish that Sells (2005) gives for Icelandic: both the expletive and the logical subject correspond to the subject in f-structure. Zaenen et al. (2017) are more agnostic concerning the correct analysis.

Arguments have been given for both subject and object analyses of the logical subject. The presentational construction is not possible with a syntactically realized object role in Mainland Scandinavian, as shown in (52).

(52) Norwegian

Det spiser mange studenter (*pølser) i denne kafe-en.
EXPL eats many students (sausages) in this cafeteria-DEF
'Many students eat (sausages) in this cafeteria.'

This gives an argument for the object analysis, which assumes that the direct object function (LFG's OBJ) is taken by the logical subject. Icelandic, on the other hand, allows transitive verbs, see example (21) above.

Another argument for the object analysis is given by subject-to-object raising. Consider (53).

(53) Swedish (Zaenen et al. 2017: 268)

Johan anser det ha varit för många hästar på kyrkogård-en.
Johan considers EXPL have been too many horses in churchyard-DEF
'Johan considers there to have been too many horses in the churchyard.'

Subject-to-object raising leaves the logical subject in the embedded object position, as shown by (53). It is the expletive that raises. This gives an argument that the expletive must be the f-structure subject of 'to have been'.

Reflexive binding has been used as argument that the logical subject is a grammatical subject. The logical subject not only allows, but seems to require a co-referring proform to be reflexive. An example is (54), in which the reflexive possessive *sin* is acceptable, while the non-reflexive *hans* is not.

(54) Swedish (Börjars & Vincent 2005)

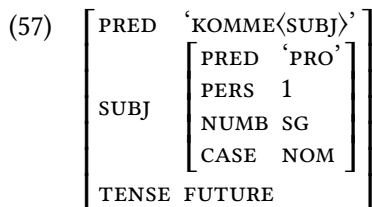
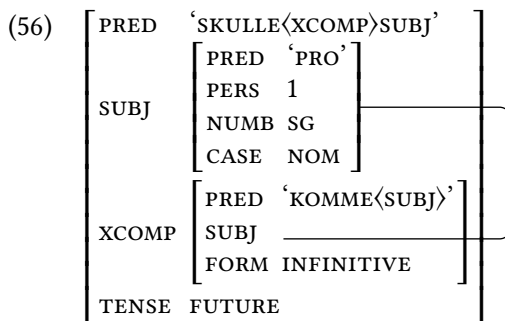
Det kom en man med sin / *hans fru.
EXPL came a man with REFL.POSS / his wife
'There came a man with his (own) wife.'

The arguments that have been given for the competing analyses of presentational sentences are discussed by Lødrup (2020) who concludes that there are no acceptable arguments for the subject analysis.

3.5 Auxiliaries – verbs or functional heads?

The analysis of auxiliary verbs has often been discussed, both outside and inside LFG. In early LFG, they were treated as raising verbs (Falk 1984). In newer LFG, the tendency has been to see them as functional heads without a PRED. With this analysis, they only contribute grammatical features (Butt et al. 2004, Frank & Zaenen 2002). The f-structures (56) and (57) show the different analyses of example (55), with an auxiliary that expresses future tense.

- (55) Norwegian
 Jeg skal komme.
 I shall come
 ‘I will come.’



The analysis of auxiliaries raises several difficult questions, and it is not clear that all verbs that are traditionally called auxiliaries should get the same analysis (Falk 2008). Dyvik (1999) discusses Norwegian modals, and criticizes the functional head analysis. His point of departure is the status of f-structure as a grammatical level of representation. He rejects the idea that semantics gives an argument for

parallel f-structure representations of morphological and periphrastic expression of, for example, the future.

If one accepts the functional head analysis, there are phenomena that must be accounted for in a different way than in traditional LFG. For example, an auxiliary restricts the form of its dependent verb. When the auxiliary selects an xCOMP, it can restrict the form of the verb heading the xCOMP with the equation (\uparrow xCOMP FORM) = INFINITIVE. To account for this kind of phenomena with the functional head analysis, Butt et al. (2004) propose a separate morphological projection, m-structure, (see also Frank & Zaenen 2002). However, Wedekind & Ørsnes (2003) argue that a simpler description is possible, using the so-called restriction operator. They also use the restriction operator in their account of VP-topicalization (Wedekind & Ørsnes 2004).

3.6 “do-support” in Scandinavian

The Scandinavian languages differ from English in not having *do*-support in interrogative and negative sentences. There is, however, a kind of *do*-support that is used in three contexts: When the main verb VP is topicalized, as in (58), elided, as in (59), or pronominalized as in (60). The support verb in these examples is the present form of (Danish) *gøre* ‘do’.

(58) Danish (Ørsnes 2011: 410)

Venter gør han ikke.
waits does he not
‘He doesn’t wait.’

(59) Danish (Ørsnes 2011: 410)

Han venter. Nej, han gør ej.
he waits no he does not
‘He’ll wait. No he won’t.’

(60) Danish (Ørsnes 2011: 410)

Han venter. Nej, det gør han ikke.
he waits no that does he not
‘He is waiting. No he is not.’

A VP is pronominalized with the pronoun *det* ‘it/that’ (Lødrup 1994). This construction often corresponds to VP ellipsis in English, which is a rather restricted option in Scandinavian.

Ørsnes (2011) discusses the use of the non-finite form of the support verb. A non-finite support verb is optional when a VP or a VP anaphor is topicalized. An example of the former is (61).

- (61) Danish (Ørsnes 2011: 420)
 Hørt efter har han aldrig (gjort).
 listened PARTICLE has he never done
 ‘Listen! he never did that.’

Ørsnes (2011) shows that the non-finite support verb in Danish can be obligatory with a post-verbal VP anaphor in some cases, as in (62) (see also Ørsnes 2013).

- (62) Danish (Ørsnes 2011: 419)
 Peter plejer aldrig ??/*(at gøre) det.
 Peter used never to do that
 ‘Peter never used to do that.’

The support verb is considered an auxiliary in Lødrup (1990, 1994). Ørsnes (2011) argues against auxiliary status. A difference from regular auxiliaries is that the support verb cannot take a verbal complement in its complement position. Another difference is that it does not impose restrictions on the shape of its complement. This can be seen in examples (58) and (61) above; a topicalized VP can have its head in the infinitive or in the same form as the support verb (with some variation within Scandinavia). Ørsnes (2011) sees the support verb as a main verb – a subject-to-subject-raising verb that takes an object complement.

3.7 Varieties of raising and control

Raising and control have been important research topics within LFG. They are related phenomena, and the border between them can be thin (see e.g. Lødrup 2008c). This section will illustrate how raising can be more constrained in Scandinavian as compared to English, and show how the analysis of raising and control has been applied to other constructions in Scandinavian. Note that the discussion of passives in Section 3.8 also covers two constructions that have been given a raising analysis: pseudopassives and complex passives.

3.7.1 Raising to object with *believe* type verbs

Norwegian is traditionally assumed not to have raising to object with *believe* type verbs (sometimes called the ECM construction). Lødrup (2008b) shows that even if sentences such as (63) are possible, sentences such as (64) are not.

- (63) Norwegian
Dette antar jeg å være en menneskelig forsvarsmekanisme.
this assume I to be a human defense.mechanism
'This I assume to be a human defense mechanism.'
- (64) Norwegian
*Jeg antar dette å være en menneskelig forsvarsmekanisme.
I assume this to be a human defense.mechanism
'I assume this to be a human defense mechanism.' [intended]

The relevant difference between (63) and (64) is that the raised object is in the canonical object position in (64), and in SpecCP in (63). Norwegian requires that the raised object be in a topic or focus position. This constraint was called the Derived Object Constraint in Postal (1974) (see also Kayne 1981). In Lødrup (2008b) the relevant verbs are equipped with a constraint in the lexicon which says that the raised object is realized as a discourse function.

Danish and Swedish are not exactly like Norwegian concerning raising to object with *believe* type verbs. In Danish, it seems to be rather marginal (Brandt 1995: 26). In Swedish, on the other hand, this kind of raising seems to be somewhat less restricted, at least in writing (Teleman et al. 1999: 576–78).

Passive raising sentences with *believe* type verbs, such as (65), are not affected by the Derived Object Constraint.

- (65) Swedish (Ramhøj 2016: 583)
Hon säg-s vara en utpräglad målskytt.
she says-PASS be a specialized goal-scorer
'She is said to be a specialized goal scorer.'

However, these passive sentences also raise some questions.

First, there is a restriction on the realization of the passive. Mainland Scandinavian has two ways of realizing the passive – with a suffix or with an auxiliary and a participle. Passive raising sentences with *believe* type verbs differ from other passives in being reluctant to take the periphrastic passive, cf. (66).

- (66) Swedish (Ramhøj 2016: 583)
*Hon blir sagd vara en utpräglad målskytt.
she becomes said be a specialized goal-scorer
'She is said to be a specialized goal scorer.'

Second, there are passive *believe* type raising sentences that do not correspond to actives, in the sense that there is no acceptable equivalent active with the passive subject as an object. An example is (65) above. These properties could be taken to indicate that the relevant sentences should not be seen as passives of raising sentences with *believe* type verbs. However, Ramhøj (2016) argues that they should.

3.7.2 Copy raising

Asudeh & Toivonen (2012) discuss so-called copy raising in Swedish and English. An example is (67).

- (67) Swedish (Asudeh & Toivonen 2012: 323)
 Tina verkar som om hon har hittat choklad-en.
 Tina seems as if she has found chocolate-DEF
 ‘Tina seems as if she has found the chocolate.’

Copy-raising differs from regular subject to subject raising in that there is a finite complement clause with a pronominal representation of the raised subject. In the analysis of Asudeh & Toivonen (2012), the *som om* ‘as if’ complement is an xCOMP whose subject is raised. This raised subject anaphorically binds the copy pronoun in the complement.

3.7.3 Pseudocoordination as control

A favorite topic in both traditional and modern Scandinavian grammar is so-called pseudocoordination (see e.g. Lødrup 2019a and references there). An example is (68).

- (68) Norwegian
 Da satt han og arbeidet.
 then sat he and worked
 ‘Then he sat working.’

A pseudocoordination contains two verbs with the same inflectional form, and the conjunction *og* ‘and’ between them. The first verb is often a posture verb, as in (68), but some verbs of other types are also possible. A pseudocoordination has grammatical properties that distinguish it from a coordination of two verbs or verb phrases (Lødrup 2019a). Two important properties are the following:

The two verbs cannot occur together in the V2 position in a sentence such as (69).

- (69) Norwegian
*Da satt og arbeidet han.
then sat and worked he
'Then he sat working.' [intended]

The first verb in a pseudocoordination allows the presentational construction without involving the second verb, cf. (70).

- (70) Norwegian (Lødrup 2019a: 92)
Nå sitter det en mann her og skriver om en ny type maskin.
now sits EXPL a man here and writes about a new type machine
'A man is sitting here now, writing about a new type of machine.'

Lødrup (2002) discusses the analysis of pseudocoordination, and argues that most pseudocoordinations are complement constructions with functional control of the complement headed by the second verb. In Lødrup (2017) this analysis is revised, with anaphoric instead of functional control. When the second verb heads a verbal complement, the properties illustrated in (69) and (70) above follow. In true coordination two verbs can occur in the V2 position, but in pseudocoordination, the first verb cannot 'bring with it' the second verb since it is the head of its complement. In (70), the object *en mann* 'a man' can be understood as the subject of the second verb because it is the controller of its PRO subject.⁸ With true coordination, a presentational construction involving the first verb only is not possible. The reason is that a preceding object cannot be understood as a subject of a second coordinated VP – only a preceding subject can.

3.7.4 The preposition *med* 'with' as a control predicate

The preposition *med* 'with' (and to some extent *uten* 'without') has interesting control properties. Lødrup (1999a) showed that it must be assumed to select a subject in one of its uses. His argument was based upon example (71), which requires a subject in the complement of *med* to bind the reflexive.

- (71) Norwegian (Lødrup 1999a: 376)
En dame med en hund foran seg kom løpende.
a lady with a dog in.front.of REFL came running
'A lady with a dog in front of her came running.'

⁸The observant reader will notice that the author here takes sides in the discussion of the analysis of the presentational construction, calling the controller an object (see Section 3.4).

The preposition *med* ‘with’ in (71) takes a subject, a non-thematic object and an xCOMP. Haug (2009) argues that *med* can take a subject also when there is no xCOMP. The argument is again based upon binding. Haug gives example (72), in which the object ‘car’ must be interpreted as the possessor of the prepositional object ‘tank’.

- (72) Norwegian (Haug 2009: 343)
 Han leverte bil-en med full tank.
 he returned car-DEF with full tank
 ‘He returned the car with the tank full.’

In Norwegian, this kind of null possessor is generally bound in the same way as a simple reflexive (Lødrup 1999a, 2010, see also Section 3.11). This means that it cannot be bound by an object (Lødrup 2010: 95), so it is necessary to assume that *med* takes a subject.

The subject of *med* is always an anaphorically bound PRO. The controller is often an argument of the matrix verb, but other controllers are also possible – even a participant implied by a verbal noun, as in example (73).

- (73) Norwegian (Haug 2009: 340)
 Fødsel-en foregår med ski på bein-a.
 birth-DEF takes.place with skis on legs-DEF
 ‘The birth takes place with (the mother or the baby) wearing skis.’

Haug (2009) gives a semantic account of *med* using Glue semantics.

3.7.5 “Backward” possessor raising

Lødrup (2009b, 2018) discusses Norwegian sentences such as (74), with a body part noun and a possessor with the preposition *på* ‘on’. This construction corresponds to the dative external possessor construction, which is found in e.g. French and German, cf. (75).

- (74) Norwegian
 Jeg brekker arm-en på ham.
 I break arm-DEF on him
 ‘I break his arm.’
- (75) French
 Je lui casse le bras.
 I him.DAT break DEF arm
 ‘I break his arm.’

In the French and German dative external possessor construction, the external possessor is understood to be affected by the verbal action. The external possessor is not included in the verb's basic valency, however. This means that the dative external possessor realizes an "extra" thematic role that must be added by a lexical rule.

The dative external possessor construction is often seen as possessor raising – the dative OBJ_θ is structure shared with the possessor function in the body part noun phrase. Alternatively, the relation between the possessor and the body part noun could be seen as binding, see e.g. Deal (2017).

Old Norse had the dative external possessor construction. In Modern Norwegian, there is no dative case, and the possessor is expressed as a PP. This construction is rather similar to the dative external possessor construction, but there is one important difference: The PP can be a part of the body part noun phrase, due to reanalysis (Lødrup 2009b, 2018). Example (74) can have 'the arm on him' as one or two constituents.

The two constituent construction can be analyzed in the same way as the dative external possessor construction, when the PP is considered an OBJ_θ . The one constituent construction is more challenging. Lødrup (2018) proposes that the noun phrase-internal possessor should be considered a so-called prominent internal possessor (see e.g. Ritchie 2017). The possessor is structure shared with the verb's OBJ_θ function. This could be considered a case of "backward" possessor raising. It could be compared to cases of raising and control in which a shared subject is realized in the lower subject position (Polinsky & Potsdam 2006), schematically as in (76).

(76) tried [John to leave]

The structure sharing equation on the main verb accounts for both forward and backward raising. The lexical entry of the verb in example (74) is given in (77).

(77) 'break $\langle (\uparrow\text{SUBJ}) (\uparrow\text{OBJ}_{\text{affected}}) (\uparrow\text{OBJ}) \rangle$ '
($\uparrow\text{OBJ}_{\text{affected}}$) = ($\uparrow\text{GF POSS}$), where GF is a local function

3.7.6 Possessor raising with unergatives

A different type of possessor raising with body part nouns can be found with transitive and unaccusative verbs in many languages. An example is (78).

- (78) Norwegian (Lødrup 2019b: 562)
 Hun vasket baby-en i ansikt-et.
 she washed baby-DEF in face-DEF
 ‘She washed the baby’s face.’

The possessor is raised from the prepositional object, and realized as an OBJ with transitive verbs, or as a subject with unaccusatives. This kind of possessor raising can also be seen as structure sharing – the OBJ is structure shared with the possessor function in the prepositional object. (As mentioned in Section 3.7.5, the relation between an external possessor and a body part noun could alternatively be seen as binding. See e.g. Deal 2017.)

Lødrup (2009c, 2019b) shows that sentences seemingly similar to (78) also occur with unergative verbs in Norwegian. An example is (79).

- (79) Norwegian (Lødrup 2019b: 563)
 Hun spyttet ham i ansikt-et.
 she spat him in face-DEF
 ‘She spat in his face.’

This option is completely productive. The only restriction is the same for transitive and unergative verbs: they must denote some form of physical contact. Lødrup (2019b) sees the raised argument with unergatives as a thematic object. It realizes the same role as the PP with *på* ‘on’ in sentences such as (74) above. Example (79) can alternatively take this PP, cf. (80).

- (80) Norwegian (Lødrup 2019b: 563)
 Hun spyttet i ansikt-et på ham.
 she spat in face-DEF on him
 ‘She spat in his face.’

However, the raised argument shows the syntactic properties of an OBJ, and not of an OBJ_θ in sentences such as (79) (Lødrup 2019b). We see, then, that the affected role can be realized as either an OBJ_θ PP or an OBJ DP/NP with unergatives. The OBJ option follows from the syntactic features assigned to arguments by Lexical Mapping Theory. The affected role will usually be treated as a secondary patient-like role by Lexical Mapping Theory. It then gets the syntactic feature [+o], and is realized as an OBJ_θ. However, with an unergative verb, the affected role can alternatively be treated as a regular patientlike role. It then gets the syntactic

feature $[-r]$, and is realized as a direct object. This option does not exist with unaccusatives or transitives. The reason is that their subject is $[-r]$, and a verb can only take one $[-r]$ argument in Norwegian, as in many other languages (Bresnan & Moshi 1990).

3.8 Varieties of the passive

The passive has been a favorite topic in lexicalist frameworks. Scandinavian has a rich and interesting variety of passives. Mainland Scandinavian has two ways of realizing the passive: a periphrastic passive with an auxiliary and a participle, or a morphological passive with a suffix (see e.g. Engdahl 2006). Icelandic only has periphrastic passives (Thráinsson 2007: 10–11). Icelandic passives with oblique subjects were mentioned in Section 3.1.

3.8.1 Different passives of ditransitives

Norwegian, Swedish and to a lesser extent Danish allow both internal arguments of a ditransitive verb to be realized as the passive subject, as shown in (81)–(83).

(81) Norwegian
De overrakte ham medalj-en.
they presented him medal-DEF
'They presented him with the medal.'

(82) Norwegian
Han ble overrakt medalj-en.
he became presented medal-DEF
'He was presented with the medal.'

(83) Norwegian
Medalj-en ble overrakt ham.
medal-DEF became presented him
'The medal was presented to him.'

These data create problems for theories of the mapping of arguments in passives. It is generally assumed that only one of the internal arguments can correspond to a passive subject. Lexical Mapping Theory assumes that only one internal argument can be classified as an unrestricted function, and thus be realized as a passive subject. Bresnan & Moshi (1990) show that some Bantu languages are "symmetrical" in the sense that either object role can correspond to a passive

subject. Lødrup (1995) argues that their analysis cannot be transferred to Mainland Scandinavian, because objects in ditransitives are not symmetrical outside the passive. However, no solution to the problem is presented.

Icelandic is both similar and different from Norwegian and Swedish concerning the passivization of ditransitives (Zaenen et al. 1985). The central group of ditransitives are those that take a dative object and an accusative object, such as *gefa* ‘give’. They allow both internal arguments to be realized as the passive subject, as shown in (84) and (85). When the dative is realized as a subject, as in (84), the object gets nominative case and can trigger agreement on the verb (compare example (38) above).

- (84) Icelandic (Zaenen et al. 1985: 460)
 Konung-inum voru gef-nar ambátt-ir.
 king-DEF.DAT were given-PL female.slave-NOM.PL
 ‘The king was given female slaves.’

- (85) Icelandic (Zaenen et al. 1985: 460)
 Ambátt-in var gef-in konung-inum.
 female.slave-DEF.NOM.SG was given.SG king-DEF.DAT
 ‘The female slave was given to the king.’

Zaenen et al. (1985) argue that both internal objects with these verbs can be either object or second object [i.e. OBJ or OBJ_θ]. The option of being an object makes it possible for them to change to subject by the (then current) lexical rule of passive, which replaces OBJ by SUBJ in the linking of roles and functions in the verb’s lexical entry.

Ditransitives with other case frames only allow the linearly first internal argument to be realized as a subject.

3.8.2 Pseudopassives

The Mainland Scandinavian languages all have pseudopassives, i.e. passives in which the subject corresponds to the object of a preposition in the active; Engdahl & Laanemets (2015) show that claims to the contrary are not correct. An example is (86).

- (86) Norwegian
 Skildringer av norsk natur se-es ofte ned på.
 depictions of Norwegian nature see-PASS often down on
 ‘People often look down upon depictions of Norwegian nature.’

Bresnan (1982c) pointed out that pseudopassives create a potential problem for a lexical treatment of the passive. She proposed a rule which incorporates the verb and the preposition into one complex verb (Bresnan 1982c: 50–59). This analysis accounts for the fact that the verb and the preposition behave as a unit in English pseudopassives. The preposition must be adjacent to the verb, and it can be a part of a derived participle-based adjective. Examples are (87)–(88).

(87) English (Bresnan 1982c: 54)

*Everything was paid twice for.

(88) English (Bresnan 1982c: 53)

Each unpaid for item will be returned.

Scandinavian pseudopassives are different from the English ones. The preposition does not have to be adjacent to the verb, as (86) shows, and derived adjectives with a preposition following the verb do not exist. Scandinavian grammarians have therefore been skeptical of preposition incorporation (see e.g. Christensen 1986).⁹ Lødrup (1991) proposes a raising to subject analysis, in which the subject and the prepositional object are structure shared (see also Alsina 2009).

3.8.3 Complex passives

The so-called complex passive is exemplified in (89).

(89) Danish (Ørsnes 2006)

Bil-en bed-es flyttet.

car-DEF ask-PASS moved

‘You are asked to move your car.’

This construction has a passive verb followed by a passive or unaccusative participle. One of its interesting properties is that there is no directly corresponding active sentence. It is impossible to realize the theme argument *bilen* ‘car.DEF’ as the object of the active verb *bede* ‘ask’.

The complex passive is possible with a small number of first verbs in Danish and Norwegian. It is more marginal in Swedish. Ørsnes (2006) gives an LFG account in which the complex passive is a subject-to-subject raising construction.

⁹These arguments rule out an analysis in which the verb and the preposition are one lexical item. However, given later developments within LFG, one could imagine a different analysis that makes the verb and the preposition one unit. They could be one PRED in f-structure in the same way as complex predicates consisting of two verbs (see the discussion following example (90) below).

3.8.4 Long passives

Another type of passive that involves two verbs is exemplified in (90).

- (90) Norwegian
 Dette forsøk-es å gjør-e(-s).
 this try-PASS to do-INF(-PASS)
 ‘One tries to do this.’

This construction can be found in Norwegian, Swedish and Danish, even if speakers’ intuitions vary. It sounds best with a passive second verb (Lødrup 2014). The subject of (90) realizes the internal argument of the second verb. This is a passive of a complex predicate consisting of two verbs (Butt 1995, Alsina 1996, Sells 2004, Andrews 2023 [this volume]), a so-called long passive (Lødrup 2014).

There is independent evidence for the complex predicate analysis. Verbs that take the long passive also allow verbal feature agreement in the active, in the sense that a second verb takes on the form of the preceding verb, instead of the expected infinitive. Verbal feature agreement is a complex predicate phenomenon, for reasons discussed in Niño (1997) and Sells (2004). Mainland Scandinavian can (to varying degrees) have this kind of agreement with imperatives and participles, as in (91)–(92) (Havnelid 2015, Aagaard 2016).

- (91) Norwegian
 Forsøk å gjør ditt beste.
 try.IMP to do.IMP your best
 ‘Try to do your best.’
- (92) Norwegian
 Hadde forsøk-t å gjør-t samtalen kort.
 had try-PTCP to do-PTCP conversation-DEF short
 ‘(I) would have tried to make the conversation short.’

3.8.5 The new passive/impersonal construction

Icelandic has a construction that has been called the new passive construction or the new impersonal construction (see Maling & Sigurjónsdóttir 2002). An example is (93).

- (93) Icelandic (Kibort & Maling 2015)
 Loks var fund-ið stelp-una eftir mikla leit.
 finally was found-N.SG girl.(F)-DEF.ACC after great search
 ‘They finally found the girl after a long search.’

This construction seems to have passive morphology. There is no realized subject. (There can be an expletive in first position, but these are usually not considered subjects, see Section 2.5.) The external role cannot be realized as a subject, and there is no “promotion to subject” of an internal role.

The analysis of this construction has been discussed several times, but the only LFG discussion is in Kibort & Maling (2015). Some authors see it as a real passive (e.g. Eythórsson 2008). Maling and her co-authors argue that despite its morphology, the construction is not a passive. They see it as an impersonal active construction, comparable to the Irish autonomous form and the Polish *-no/to* construction. This means that the verbal morphology introduces a PRO subject with an unspecified, typically human interpretation. This PRO is argued to behave like other subjects syntactically. For example, it can control a subject-oriented adjunct, as shown in (94).

- (94) Icelandic (Maling & Sigurjónsdóttir 2002: 125)
Það var kom-ið skellihljæjandi í tím-ann.
EXPL was come-N.SG laughing.out.loud into class-DEF
‘People came into class laughing out loud.’

3.9 Directed motion – rules or constructions

Toivonen (2002) and Asudeh et al. (2013) discuss the Swedish directed motion construction, in which a verb takes a reflexive and a directional PP. An example is (95).

- (95) Swedish (Asudeh et al. 2013: 13)
Sarah armbågade sig genom mängd-en.
Sarah elbowed REFL through crowd-DEF
‘Sarah elbowed her way through the crowd.’

Toivonen (2002) discusses how this kind of sentence should be described, with a construction or with a lexical rule. An argument for using a construction is that “it is difficult to pin its meaning to any one of its individual parts” (Toivonen 2002: 342). The relevant sentences denote traversal, but the verb does not need to be a motion verb. There is no special word or morpheme that is uniquely associated with the construction.

Asudeh et al. (2013) discuss this and similar expressions further. They point out that assuming a directed motion construction would violate the Lexical Integrity Principle:

“Morphologically complete words are leaves of the c-structure tree and each leaf corresponds to one and only one c-structure node.” (Bresnan et al. 2016: 92)

This principle entails that units smaller or bigger than words cannot be inserted in c-structure. Asudeh et al. (2013) propose templates to factor out grammatical information that can be invoked by words or construction-specific phrase structure rules. This makes it possible to capture the constructional effects, without giving up the Lexical Integrity Principle.

3.10 Definiteness and pronouns

3.10.1 Double definiteness

So-called double definiteness can be found in Norwegian, Swedish and Faroese, but not in Danish and Icelandic. Examples are (96)–(97).

(96) Norwegian
 denne hest-en / ??hest
 this horse-DEF / horse
 ‘this horse’

(97) Norwegian
 den hvit-e hest-en / ??hest
 the white-DEF horse-DEF / horse
 ‘the white horse’

Double definiteness means that the definiteness of the nominal phrase is expressed by two elements: both the determiner and the definite suffix on the noun.¹⁰ In (97), the adjective makes the determiner *den* obligatory. When there is no adjective, a definite noun such as *hesten* ‘horse.DEF’ can be a nominal phrase on its own.

Double definiteness is usually obligatory in the colloquial language. There are, however, certain options for semantic differences with and without double definiteness, especially in literary style. Some researchers assume that the two definite elements give different semantic contributions to the phrase (e.g. Julien 2005: 35–44).

¹⁰The definite (or “weak”) form of the adjective in (98) is conditioned by the definiteness of the nominal phrase. This will not be discussed further here.

The LFG formalism makes it easy to account for double definiteness by letting both definite elements introduce [DEF +]. A problem is then how to avoid double definiteness in languages where it is ungrammatical, such as Danish. Cf. example (98).

- (98) Danish
den hvid-e hest / *hest-en
the white-DEF horse / horse-DEF
'the white horse'

One way of accounting for Danish is to use so-called instantiated values (Strahan 2008: 213–14). The Danish determiner *den* 'the' is then specified as [\uparrow DEF = + $_$], where the underscore indicates that this specification cannot unify with anything else. The Danish definite noun *hesten* 'horse.DEF' also has this specification, so (98) is ruled out with a definite noun.

A different analysis of double definiteness can be found in Romero (2015). He assumes that the determiner is the only element that has definiteness as an inherent property, while the noun simply agrees with it. The definite form of the noun then carries a constraining equation [\uparrow DEF =_c +]. This analysis gives rise to a problem with nominal phrases such as *hesten* 'horse.DEF', which can be used in all argument positions. Romero's solution is that *hesten* is really *den hesten* 'the horse.DEF', where the elements undergo lexical sharing (in the sense of Wescoat 2002).

Börjars & Harries (2008) discuss the history of double definiteness, and make the following remark on its analysis:

All analyses of the difference between double and single definiteness appear to be somewhat stipulative [...] This may be because it is a relatively superficial phenomenon, not associated with deep semantic properties, and hence there may not be any fundamental principled explanation. (Börjars & Harries 2008: 341)

3.10.2 Pronominal demonstratives

Norwegian and Danish can use a pronoun as a demonstrative in sentences such as (99)–(100).

- (99) Norwegian (Strahan 2008: 193)
Se på han mann-en!
look at he.NOM man-DEF
'Look at that man!'

- (100) Danish (Strahan 2008: 193)
 Se på ham mand-en!
 look at he.ACC man-DEF
 ‘Look at that man!’

Johannessen (2008) says that the use of the demonstrative is linked to what she calls psychological distance, and names it the pronominal psychological demonstrative. The form of the pronoun is invariable in each language, not depending upon the function of the nominal phrase. Norwegian always uses the nominative, while Danish uses the accusative. It is striking that Danish can have the definite form of the noun in this construction when double definiteness is not allowed otherwise.

A nominal phrase with a pronominal demonstrative always has specific reference (while the regular distal demonstrative *den* is neutral in this respect). Strahan (2008) sees the relation between the specificity of the pronominal demonstrative and the definiteness of the noun as a kind of agreement.

A difference between Norwegian and Danish is that Danish needs a determiner following the pronominal demonstrative when there is an adjective preceding the noun, as in (101). The noun is then indefinite. The Norwegian equivalent cannot have this determiner following the pronominal demonstrative, as shown in (102).

- (101) Danish (Strahan 2008: 213)
 Det er ham den store mand.
 it is he.ACC the big-DEF man
 ‘It is that big man.’

- (102) Norwegian
 Det er han (*den) store mann-en.
 it is he.NOM the big-DEF man-DEF
 ‘It is that big man.’

This difference between Norwegian and Danish shows that the pronominal demonstrative must be at different levels in c-structure in the two languages. Strahan (2008) assumes that it is under NP in Norwegian, and under DP in Danish.

Varieties of Swedish are similar to Danish in allowing sentences parallel to (101). On the other hand, Swedish is like Norwegian in using the nominative form of the pronoun.

3.10.3 Nominative and accusative of Danish pronouns

Personal pronouns in Danish have, like English, the accusative form as the default form, while the nominative is reserved for subjects. Ørsnes (2002) discusses a special feature of Danish: The nominative is only used for local subjects, as in (103). A non-local subject is realized in the accusative form, as in (104).

(103) Danish (Ørsnes 2002)
Peter tror han vinder.
Peter thinks he.NOM wins
'Peter thinks he is going to win.'

(104) Danish (Ørsnes 2002)
Ham / *han tror Peter vinder.
he.ACC / he.NOM thinks Peter wins
'Peter thinks he is going to win.'

Ørsnes (2002) gives the following conditions for nominative and accusative pronouns:

Nominative The DP is the subject of the immediately containing f-structure.

Accusative The DP is *not* the subject of the immediately containing f-structure (but possibly the subject of an embedded f-structure).

The constructive case formalism (Nordlinger 1998) makes it possible to state these conditions in a simple way. Ørsnes (2002) proposes that the accusative *ham* is equipped with the restriction (105), and the nominative *han* with (106).

(105) *ham* $\{\neg (\text{SUBJ } \uparrow) \vee$
 $((\text{COMP}^+ \text{SUBJ } \uparrow) \text{DF}) = \uparrow \}$

(106) *han* $(\text{SUBJ } \uparrow)$
 $((\text{COMP}^+ \text{SUBJ } \uparrow) \text{DF}) \neq \uparrow$

3.11 Reflexive binding

3.11.1 The classical LFG approach

The basic facts about binding of reflexives are rather similar in the Mainland Scandinavian languages (but see Lundquist 2014a for some nuances).

Norwegian data has played an important role in the development of binding theory in LFG. Dalrymple (1993) was influenced by the pioneer work of Hellan (1988) (see also Hestvik 1991). Her work is followed up in Bresnan et al. (2016: 227–85). Two general introductions to LFG also discuss binding in Norwegian and Swedish: Falk (2001: 173–91) and Börjars et al. (2019: 152–175).

Anaphoric elements in Norwegian give a nice illustration of different kinds of binding requirements. Their properties are shown in table 1 (from Dalrymple 1993: 34). A nucleus is a PRED and the functions that it selects. A complete nucleus is a nucleus that contains a SUBJ.

Table 1: Anaphoric elements in Norwegian

	Bound to:	Disjoint from:
<i>seg selv</i>	subject in coargument domain	—
<i>ham selv</i>	argument in minimal complete nucleus	subject in minimal complete nucleus
<i>seg</i>	subject in minimal finite domain	subject in minimal complete nucleus
<i>sin</i>	subject in minimal finite domain	—

Examples are (107)–(110).

(107) Norwegian (Dalrymple 1993: 29, from Hellan 1988: 67)

Jon fortalte meg om *seg selv*.
 Jon told me about REFL SELF
 ‘Jon told me about himself.’

(108) Norwegian (Dalrymple 1993: 29, from Hellan 1988: 104)

Vi fortalte Jon om *ham selv*.
 We told Jon about him SELF
 ‘We told Jon about himself.’

(109) Norwegian (Dalrymple 1993: 31, from Hellan 1988: 73)

Jon hørte oss snakke om *seg*.
 Jon heard us talk about REFL
 ‘Jon heard us talk about him.’

- (110) Norwegian (Dalrymple 1993: 33, from Hellan 1988: 75)
Jon ble arrestert i sin kjøkkenhave.
Jon became arrested in REFL.POSS kitchen-garden
'Jon was arrested in his kitchen garden.'

Dalrymple shows how anaphoric elements can be equipped with binding requirements in their lexical entries. Binding is described as an inside-out phenomenon in f-structure. Intuitively, we start at the anaphoric element, and go outwards to find a possible binder to co-index with. The path outward is restricted in different ways for different elements. For example, *seg selv* is bound to the subject in its coargument domain, which means that the path cannot go through an f-structure that contains a subject. Possessive *sin* is bound to a subject in a minimal finite domain, which means that the path cannot go through an f-structure that contains TENSE.

The relation between the anaphoric element and the binder can be non-local, as shown by the long distance use of the simple reflexive *seg* (example (109)). This is a case of functional uncertainty.

3.11.2 Some questions of data and interpretation

The Norwegian binding data used by Dalrymple have been the basis of theoretical discussion within different frameworks. They are not without their problems, however. The Hellan/Dalrymple assumptions were criticized in Lødrup (1999a, 2007, 2008a). Three problems for the Hellan/Dalrymple assumptions will be mentioned here: object binders, the status of the simple reflexive *seg*, and binding into a finite clause.

3.11.2.1 Object binders

Hellan and Dalrymple assume that only subjects are possible binders. This might be considered a somewhat brutal idealization of the data, because speakers accept object binders as well in some cases, such as (111) (Lødrup 2008a).

- (111) Norwegian
Regl-ene er til for å beskytte dem mot seg selv.
rules-DEF are PARTICLE for to protect them against REFL SELF
'The rules exist to protect them against themselves.'

3.11.2.2 The status of the simple reflexive *seg*

Hellan and Dalrymple assume that the simple reflexive *seg* is not used in local binding, only in long distance binding as in example (109) above. A difficult question concerns the status of the simple reflexive when it is not long distance bound. It is uncontroversial that it can be a non-argument, e.g. with inherently reflexive verbs (such as *skynde seg* ‘hurry’). The problem concerns sentences such as (112), in which the simple reflexive seems to be locally bound.

- (112) Norwegian
 Jon vasker *seg*.
 Jon washes REFL
 ‘Jon is washing himself.’

In the Hellan/Dalrymple approach, one has to say that this is not an argument reflexive, but a lexical reflexive that is used to detransitivize the verb. Lødrup (1999a, 2007) argues that the simple reflexive is a thematic object in sentences such as (112). He claims that a locally bound simple reflexive is possible in what he calls a physical contexts (see also Bresnan et al. 2016: 279–282). This means that the reflexive is the object of a verb that denotes an action directed towards the body of the subject, or the object of a locational preposition.

Physical contexts are also the contexts that allow body part nouns and other nouns in the “personal domain” to occur in the definite form without a possessive pronoun, as in (113) (Lødrup 1999a, 2010). The subject is then understood as the possessor. This use of the definite form is independent of the regular conditions on definiteness, such as being previously known or mentioned.

- (113) Norwegian
 Jon vasker *ansikt-et*.
 Jon washes face-DEF
 ‘Jon is washing his face.’

Lødrup assumes that both simple reflexives and the relevant group of definite nouns can be bound in physical contexts. Outside physical contexts, the complex reflexive is required – and a body part noun needs a possessive pronoun (or a definite form that satisfies the regular conditions on definiteness). This is shown in (114)-(115).

- (114) Norwegian
 Jon elsker *seg* *(*selv*).
 Jon loves REFL (SELF)
 ‘Jon loves himself.’

- (115) Norwegian
Jon elsker ansikt-et *(sitt).
Jon loves face-DEF (REFL.POSS)
'Jon loves his face.'

3.11.2.3 Binding into a finite clause

Mainland Scandinavian allows non-local binding into a non-finite clause, as in example (109) above. Varieties of Mainland Scandinavian also allow binding into a finite clause to some extent. Lødrup (2009a) shows that this can be acceptable when the subject of the embedded clause is low prominent: expletive, non-animate or non-specific. Examples are (116)-(117). Note that the complex reflexive is used in (117).

- (116) Norwegian (Lødrup 2009b: 116)
Alle kan føle det er en del av seg...
all can feel it is a part of REFL
'Everybody can feel that it is a part of them.'

- (117) Norwegian (Lundquist 2014b)
Folk leser vel bare de brev-ene som er til seg selv.
people read presumably only the letters-DEF that are to REFL SELF
'People presumably only read the letters which are for them.'

The Norwegian (117) is accepted by a majority of informants, and the same is true of its Swedish equivalent (Lundquist 2014b).

The conditions on binding into a finite clause in Mainland Scandinavian seem to be complicated, and there has been some discussion about their nature (Strahan 2009, 2011, Lødrup 2009a, Lundquist 2014b,c, Julien 2020).

3.11.3 Long distance binding in Insular Scandinavian

Icelandic allows binding into a finite clause when the subordinate verb is subjunctive (Thráinsson 1976). Icelandic long distance reflexives are usually considered logophoric (see e.g. Maling 1984). An example is (118).

- (118) Icelandic (Thráinsson 1976)
Jón segir að María elsk-i sig.
Jón says that María loves-SBJV REFL
'Jón says that María loves him.'

Sentences corresponding to (118) are also possible in Faroese (Strahan 2011), even though this language does not have a subjunctive mood.

Strahan (2009, 2011) compares long distance binding in Mainland and Insular Scandinavian, and discusses the formalization of relevant binding conditions. An original idea is the use of outside-in (in addition to inside-out) functional uncertainty, to account for the role of the binder as a perspective-holder

3.12 Binding of distributive possessors

The Scandinavian languages can use prenominal distributive possessors to express distance distributivity. Examples are (119)–(120).

(119) Swedish

Vi har ätit varsitt äpple.
 we have eaten each.3.REFL.POSS.NEUT apple
 ‘We have eaten one apple each.’

(120) Eastern Norwegian

Vi har spist hver-t vårt eple.
 we have eaten each-NEUT 1.REFL.POSS-NEUT apple
 ‘We have eaten one apple each.’

These distributive elements are composed of a distributive quantifier and a reflexive possessor (at least from a historical point of view). Lødrup et al. (2019) compare the grammar of these expressions in Standard Swedish and Eastern Norwegian, and find a number of differences. Eastern Norwegian has agreement that is lacking in Standard Swedish: The distributive quantifier agrees with the following noun in number and gender, and the possessor agrees with the subject in person and number. Another difference is that the Eastern Norwegian expression follows standard binding requirements, while this is not always necessary in Swedish.

Lødrup et al. (2019) give an analysis which is based upon an idea from Vangsnes (2002): The Swedish *varsitt* ‘each.3.REFL.POSS.NEUT’ is a single lexical unit, while its Eastern Norwegian correspondent is syntactically complex. They also give a semantic analysis in which the distributive possessor has the semantics of a Skolemized Choice Function.

4 Computational work

Computational approaches to Scandinavian grammar are not covered in this chapter. It could be mentioned, however, that seminal work on Norwegian grammar within LFG has been conducted in several computational linguistics projects at the University of Bergen. NorGram is a broad-coverage LFG grammar for Norwegian implemented on the XLE platform (Dyvik 2000, see also Forst & King 2023 [this volume]). Extensive online documentation of NorGram covers inter alia basic clause structure, lexical categories, phrase structure categories, and f-structure features.¹¹ NorGram has been used in the construction of the LFG treebank NorGramBank (Dyvik et al. 2016, see also Rosén 2023 [this volume]). For the treebank there is detailed documentation (in Norwegian) on how to search for various grammatical phenomena; it provides not only c- and f-structures, but also comments on the analyses.¹²

5 Conclusion

There is a rich LFG literature on various aspects of the Scandinavian languages, and it was impossible to do justice to it all in this chapter. Scandinavian data have played a role in the development of LFG, for example when it comes to binding conditions and functional categories. Chomskyan approaches have had a dominating position in Scandinavian syntax, and research in LFG has given alternative perspectives. It has produced results that are important both for Scandinavian and international linguistics.

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References

Aagaard, Teodor Ekblad. 2016. *Doble partisipper i norsk: Verbal trekkongruens og restrukturering*. Oslo: University of Oslo. (MA thesis).

¹¹https://clarino.uib.no/iness/page?page-id=norgram_documentation

¹²<https://clarino.uib.no/iness/page?page-id=norgram-soek>

- Ahrenberg, Lars. 1992. The formalization of Field Grammar. In Jonna Louis-Jensen & Jóhan Hendrik W Poulsen (eds.), *The Nordic languages and modern linguistics*, 119–130. Tórshavn: Føroya Fróðskaparfelag.
- Alsina, Alex. 1996. *The role of argument structure in grammar: Evidence from Romance* (CSLI Lecture Notes). Stanford: CSLI Publications.
- Alsina, Alex. 2009. The prepositional passive as structure-sharing. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG '09 conference*, 44–64. Stanford: CSLI Publications.
- Alsina, Alex, K. P. Mohanan & Tara Mohanan. 2005. How to get rid of the COMP. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG '05 conference*, 21–41. Stanford: CSLI Publications.
- Andréasson, Maia. 2007. *Satsadverbial, ledföljd och informationsdynamik i svenskan*. Gothenburg: University of Gothenburg. (Doctoral dissertation).
- Andréasson, Maia. 2008. Not all objects are born alike. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG '08 conference*, 26–45. Stanford: CSLI Publications.
- Andréasson, Maia. 2010. Object shift or object placement in general? In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG '10 conference*, 26–42. Stanford: CSLI Publications.
- Andrews, Avery D. 1976. The VP-complement analysis in Modern Icelandic. In Alan Ford, John Reighard & Rajendra Singh (eds.), *Proceedings of the 6th annual meeting of the North Eastern Linguistic Society*, 165–185. Reprinted with revisions in Maling & Zaenen (1990).
- Andrews, Avery D. 1982. The representation of case in Modern Icelandic. In Joan Bresnan (ed.), *The mental representation of grammatical relations*, 427–503. Cambridge, MA: The MIT Press.
- Andrews, Avery D. 2023. Complex predicates. In Mary Dalrymple (ed.), *Handbook of Lexical Functional Grammar*, 267–308. Berlin: Language Science Press. DOI: 10.5281/zenodo.10185946.
- Askedal, John Ole. 1982. On the syntactic representation of so-called “existential-presentative sentences” in Norwegian and German: A contrastive analysis. In Thorstein Fretheim & Lars Hellan (eds.), *Papers from the Sixth Scandinavian Conference of Linguistics*, 1–25. Trondheim: Tapir.
- Asudeh, Ash, Mary Dalrymple & Ida Toivonen. 2013. Constructions with Lexical Integrity. *Journal of Language Modelling* 1(1). 1–54. DOI: 10.15398/jlm.v1i1.56.
- Asudeh, Ash & Ida Toivonen. 2012. Copy raising and perception. *Natural Language & Linguistic Theory* 30(2). 321–380. DOI: 10.1007/s11049-012-9168-2.
- Booth, Hannah. 2018. *Expletives and clause structure: Syntactic change in Icelandic*. Manchester: University of Manchester. (Doctoral dissertation).

- Booth, Hannah, Christin Schätzle, Kersti Börjars & Miriam Butt. 2017. Dative subjects and the rise of positional licensing in Icelandic. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG '17 conference*, 104–112. Stanford: CSLI Publications.
- Börjars, Kersti, Elisabet Engdahl & Maia Andréasson. 2003. Subject and object positions in Swedish. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG '03 conference*, 43–58. Stanford: CSLI Publications.
- Börjars, Kersti & Pauline Harries. 2008. The clitic-affix distinction, historical change, and Scandinavian bound definiteness marking. *Journal of Germanic Linguistics* 20(4). 289–350. DOI: 10.1017/S1470542708000068.
- Börjars, Kersti, Pauline Harries & Nigel Vincent. 2016. Growing syntax: The development of a DP in Northern Germanic. *Language* 92. e1–37. DOI: 10.1353/lan.2016.0002.
- Börjars, Kersti, Rachel Nordlinger & Louisa Sadler. 2019. *Lexical-Functional Grammar: An introduction*. Cambridge, UK: Cambridge University Press. DOI: 10.1017/9781316756584.
- Börjars, Kersti & Nigel Vincent. 2005. Position vs. function in Scandinavian presentational constructions. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG '05 conference*, 54–72. Stanford: CSLI Publications.
- Brandt, Søren. 1995. *Infinitive control in Danish*. Copenhagen: Munksgaard.
- Bresnan, Joan. 1982a. Control and complementation. *Linguistic Inquiry* 13(3). Reprinted in Bresnan 1982b, 343–434.
- Bresnan, Joan (ed.). 1982b. *The mental representation of grammatical relations*. Cambridge, MA: The MIT Press.
- Bresnan, Joan. 1982c. The passive in lexical theory. In Joan Bresnan (ed.), *The mental representation of grammatical relations*, 3–86. Cambridge, MA: The MIT Press.
- Bresnan, Joan, Ash Asudeh, Ida Toivonen & Stephen Wechsler. 2016. *Lexical-Functional Syntax*. 2nd edn. (Blackwell Textbooks in Linguistics 16). Malden, MA: Wiley-Blackwell.
- Bresnan, Joan & Lioba Moshi. 1990. Object asymmetries in comparative Bantu syntax. *Linguistic Inquiry* 21. 147–186.
- Butt, Miriam. 1995. *The structure of complex predicates in Urdu* (Dissertations in Linguistics). Stanford: CSLI Publications.
- Butt, Miriam, María-Eugenia Niño & Frédérique Segond. 2004. Multilingual processing of auxiliaries within LFG. In Louisa Sadler & Andrew Spencer (eds.), *Projecting morphology*. Stanford: CSLI Publications. Previously published as Butt, Niño & Segond (1996).

- Butt, Miriam, María-Eugenia Niño & Frederique Segond. 1996. Multilingual processing of auxiliaries in LFG. In D. Gibbon (ed.), *Natural language processing and speech technology: Results of the 3rd KONVENS conference*, 111–122. Berlin: Mouton de Gruyter.
- Christensen, Kirsti Koch. 1986. Complex passives, reanalysis and word formation. *Nordic Journal of Linguistics* 9(2). 135–162. DOI: 10.1017/s0332586500001475.
- Dalrymple, Mary. 1993. *The syntax of anaphoric binding*. Stanford: CSLI Publications.
- Dalrymple, Mary & Helge Lødrup. 2000. The grammatical functions of complement clauses. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG '00 conference*, 104–121. Stanford: CSLI Publications.
- Deal, Amy Rose. 2017. External possession and possessor raising. In Martin Everaert & Henk van Riemsdijk (eds.), *The Wiley Blackwell companion to syntax*, 2nd edn., 1509–1540. Hoboken: John Wiley & Sons. DOI: 10.1002/9781118358733.wbsyncom047.
- Diderichsen, Paul. 1946. *Elementær dansk grammatik*. København: Gyldendal.
- Diesing, Molly. 1990. Verb movement and the subject position in Yiddish. *Natural Language & Linguistic Theory* 8(1). 41–79. DOI: 10.1007/bf00205531.
- Dyvik, Helge. 1999. The universality of f-structure: Discovery or stipulation? The case of modals. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG '99 conference*, 1–11. Stanford: CSLI Publications.
- Dyvik, Helge. 2000. Nødvendige noder i norsk: Grunntrekk i en leksikalsk-funksjonell beskrivelse av norsk syntaks. In Øivin Andersen, Kjersti Fløttum & Torodd Kinn (eds.), *Menneske, språk og felleskap*, 25–45. Oslo: Novus.
- Dyvik, Helge, Gyri Smørdal Losnegaard & Victoria Rosén. 2019. Multiword expressions in an LFG grammar for Norwegian. In Yannick Parmentier & Jakub Waszczuk (eds.), *Representation and parsing of multiword expressions*. Berlin: Language Science Press. DOI: 10.5281/zenodo.2579037.
- Dyvik, Helge, Paul Meurer, Victoria Rosén, Koenraad De Smedt, Petter Haugereid, Gyri Smørdal Losnegaard, Gunn Inger Lyse & Martha Thunes. 2016. NorGramBank: A ‘deep’ treebank for Norwegian. In Nicoletta Calzolari, Khalid Choukri, Thierry Declerck, Marko Grobelnik, Bente Maegaard, Joseph Mariani, Asunción Moreno, Jan Odijk & Stelios Piperidis (eds.), *Proceedings of the 10th International Conference on Language Resources and Evaluation (LREC'16)*, 3555–3562. Portorož. <http://www.lrec-conf.org/proceedings/lrec2016/summaries/943.html>.
- Engdahl, Elisabet. 2006. Semantic and syntactic patterns in Swedish passives. In Benjamin Lyngfelt & Torgrim Solstad (eds.), *Demoting the agent: Passive*,

- middle and other voice phenomena*, 21–45. Amsterdam: John Benjamins. DOI: 10.1075/la.96.04eng.
- Engdahl, Elisabet & Anu Laanemets. 2015. Prepositional passives in Danish, Norwegian and Swedish: A corpus analysis. *Nordic Journal of Linguistics* 38(3). 285–337.
- Engdahl, Elisabet & Annie Zaenen. 2020. Grammatical function selection in Swedish object shift. In Miriam Butt & Ida Toivonen (eds.), *Proceedings of the LFG '20 conference*, 109–126. Stanford: CSLI Publications.
- Eythórsson, Thórhallur. 2008. The new passive in Icelandic really is a passive. In Thórhallur Eythórsson (ed.), *Grammatical change and linguistic theory: The Rosendal papers*, 173–219. Amsterdam: John Benjamins. DOI: 10.1075/la.113.07eyt.
- Faarlund, Jan Terje. 2004. *The syntax of Old Norse*. Oxford: Oxford University Press. DOI: 10.1093/acprof:oso/9780199235599.001.0001.
- Faarlund, Jan Terje. 2019. *The syntax of Mainland Scandinavian*. Oxford: Oxford University Press. DOI: 10.1093/oso/9780198817918.001.0001.
- Falk, Yehuda N. 1984. The English auxiliary system: A lexical-functional analysis. *Language* 60(3). 483–509. DOI: 10.2307/413988.
- Falk, Yehuda N. 2001. *Lexical-Functional Grammar: An introduction to parallel constraint-based syntax*. Stanford: CSLI Publications.
- Falk, Yehuda N. 2008. Functional relations in the English auxiliary system. *Linguistics* 46(5). 861–889. DOI: 10.1515/ling.2008.028.
- Forst, Martin & Tracy Holloway King. 2023. Computational implementations and applications. In Mary Dalrymple (ed.), *Handbook of Lexical Functional Grammar*, 1083–1123. Berlin: Language Science Press. DOI: 10.5281/zenodo.10185986.
- Frank, Anette & Annie Zaenen. 2002. Tense in LFG: Syntax and morphology. In Hans Kamp & Uwe Reyle (eds.), *How we say WHEN it happens: Contributions to the theory of temporal reference in natural language*. Reprinted in Sadler & Spencer (2004: 23–66). Tübingen: Niemeyer. DOI: 10.1515/9783110923537.
- Garbacz, Piotr. 2009. *Issues in Övdalian syntax: Structural properties and the role of inflection in a Scandinavian vernacular*. Lund: Lund University. (Doctoral dissertation).
- Hankamer, Jorge & Line Mikkelsen. 2002. A morphological analysis of definite nouns in Danish. *Journal of Germanic Linguistics* 14(2). 137–175. DOI: 10.1017/s1470542702000077.
- Haug, Dag. 2009. ‘med’ – The syntax and semantics of concomitance in Norwegian. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG '09 conference*, 338–356. Stanford: CSLI Publications.

- Havnelid, Inga Margrethe. 2015. "Prøv å fakk skurken som gjemmer seg på Manhattan": Om dobbel imperativ i norsk. Oslo: University of Oslo. (MA thesis).
- Heinat, Fredrik. 2012. Finiteness in Swedish. *Working Papers in Scandinavian Syntax* 90. 81–110.
- Hellan, Lars. 1988. *Anaphora in Norwegian and the theory of grammar*. Dordrecht: Walter de Gruyter. DOI: 10.1515/9783110849134.
- Hellan, Lars & Dorothee Beermann. 2020. Presentational and related constructions in Norwegian with reference to German. In Werner Abraham, Elisabeth Leiss & Yasuhiro Fujinawa (eds.), *Thetics and categoricals*, 70–104. Amsterdam: John Benjamins. DOI: 10.1075/la.262.03hel.
- Hestvik, Arild. 1991. Subjectless binding domains. *Natural Language & Linguistic Theory* 9(3). 455–496. DOI: 10.1007/bf00135355.
- Heycock, Caroline, Antonella Sorace, Zakaris Svabo Hansen, Frances Wilson & Sten Vikner. 2012. Detecting the late stages of syntactic change: The loss of V-to-T in Faroese. *Language* 88(3). 558–600. DOI: 10.1353/lan.2012.0053.
- Holmberg, Anders. 1999. Remarks on Holmberg's generalization. *Studia Linguistica* 53(1). 1–39. DOI: 10.1111/1467-9582.00038.
- Johannessen, Janne Bondi. 2008. Pronominal psychological demonstratives in Scandinavian: Their syntax, semantics and pragmatics. *Nordic Journal of Linguistics* 31(2). 161–192.
- Julien, Marit. 2005. *Nominal phrases from a Scandinavian perspective*. Amsterdam: John Benjamins. DOI: 10.1075/la.87.
- Julien, Marit. 2020. Langdistansebinding i norsk er logoforisk. *Norsk lingvistisk tidsskrift* 1. 27–58.
- Kayne, Richard. 1981. On certain differences between French and English. *Linguistic Inquiry* 12(3). 349–371.
- Kibort, Anna & Joan Maling. 2015. Modelling the syntactic ambiguity of the active vs. passive impersonal in LFG. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG '15 conference*, 145–165. Stanford: CSLI Publications.
- Kristoffersen, Kristian Emil. 1996. *Infinitival phrases in Old Norse: Aspects of their syntax and semantics*. Oslo: University of Oslo. (Doctoral dissertation).
- Larsson, Ida. 2014. Choice of non-referential subject in existential constructions and with weather-verbs. *Nordic Atlas of Language Structures Journal* 1. 1. <http://www.tekstlab.uio.no/nals>.
- Lødrup, Helge. 1990. VP-topicalization and the verb *gjøre* in Norwegian. *Working Papers in Scandinavian Syntax* 45. 3–12.
- Lødrup, Helge. 1991. The Norwegian pseudopassive in lexical theory. *Working Papers in Scandinavian Syntax* 47. 118–129.

- Lødrup, Helge. 1994. "Surface proforms" in Norwegian and the Definiteness Effect. In *Proceedings of the 24th annual meeting of the North Eastern Linguistic Society*, 303–315. Amherst: GLSA.
- Lødrup, Helge. 1995. The realization of benefactives in Norwegian. In Audra Dainora, Rachel Hemphill, Barbara Luka, Barbara Need & Sheri Pargman (eds.), *Papers from the 31st regional meeting of the Chicago Linguistic Society*, 317–328.
- Lødrup, Helge. 1999a. Inalienables in Norwegian and binding theory. *Linguistics* 37(3). 365–388. DOI: 10.1515/ling.37.3.365.
- Lødrup, Helge. 1999b. Linking and optimality in the Norwegian presentational focus construction. *Nordic Journal of Linguistics* 22(2). 205–229. DOI: 10.1080/03325860050179254.
- Lødrup, Helge. 2002. The syntactic structures of Norwegian pseudocoordinations. *Studia Linguistica* 56(2). 121–143. DOI: 10.1111/1467-9582.00090.
- Lødrup, Helge. 2004. Clausal complementation in Norwegian. *Nordic Journal of Linguistics* 27(1). 61–95. DOI: 10.1017/s0332586504001155.
- Lødrup, Helge. 2007. A new account of simple and complex reflexives. *Journal of Comparative Germanic Linguistics* 10(3). 183–201.
- Lødrup, Helge. 2008a. Objects binding reflexives in Norwegian. *Norsk lingvistisk tidsskrift* 26(2). 136–160.
- Lødrup, Helge. 2008b. Raising to object in Norwegian and the derived object constraint. *Studia Linguistica* 62(2). 155–181. DOI: 10.1111/j.1467-9582.2008.00147.x.
- Lødrup, Helge. 2008c. The diversity and unity of the accusative with infinitive construction: A Norwegian perspective. *Linguistics* 46(5). 891–916. DOI: 10.1515/ling.2008.029.
- Lødrup, Helge. 2009a. Animacy and long distance binding in Norwegian. *Nordic Journal of Linguistics* 32(1). 111–136. DOI: 10.1017/s0332586509002054.
- Lødrup, Helge. 2009b. External and internal possessors with body part nouns: The case of Norwegian. *SKY Journal of Linguistics* 22. 221–250.
- Lødrup, Helge. 2009c. Looking possessor raising in the mouth: Norwegian possessor raising with unergatives. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG '09 conference*, 420–440. Stanford: CSLI Publications.
- Lødrup, Helge. 2010. Implicit possessives and reflexive binding in Norwegian. *Transactions of the Philological Society* 108(2). 89–109. DOI: 10.1111/j.1467-968x.2010.01235.x.
- Lødrup, Helge. 2011. Norwegian possessive pronouns: Phrases, words or suffixes? In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG '11 conference*, 339–359. Stanford: CSLI Publications.

- Lødrup, Helge. 2014. Long passives in Norwegian: Evidence for complex predicates. *Nordic Journal of Linguistics* 37. 367–391. DOI: 10.1017/S0332586514000262.
- Lødrup, Helge. 2017. Norwegian pseudocoordination with the verb *drive* ‘carry on’: Control, raising, grammaticalization. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG ’17 conference*, 264–284. Stanford: CSLI Publications.
- Lødrup, Helge. 2018. Prominent internal possessors and backward possessor raising: Norwegian *ryggen på ham* ‘the back on him’. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG ’18 conference*, 248–267. Stanford: CSLI Publications.
- Lødrup, Helge. 2019a. Pseudocoordination with posture verbs in Mainland Scandinavian – a grammaticalized progressive construction? *Nordic Journal of Linguistics* 42(1). 87–110. DOI: 10.1017/S0332586519000027.
- Lødrup, Helge. 2019b. The accusative external possessor with Norwegian unergatives. *Argumentum* 15(2019). (↑ TOPIC NUM) = 60: Special issue in honour of Tibor Laczkó on the occasion of his 60th birthday, 561–574.
- Lødrup, Helge. 2020. Are there arguments for the subject analysis of Mainland Scandinavian presentational sentences? In Miriam Butt & Ida Toivonen (eds.), *Proceedings of the LFG ’20 conference*, 190–210. Stanford: CSLI Publications.
- Lødrup, Helge, Raj Singh & Ida Toivonen. 2019. Distributive possessors in Swedish and Norwegian: Binding, agreement, and quantification. In Miriam Butt, Tracy Holloway King & Ida Toivonen (eds.), *Proceedings of the LFG ’19 conference*, 170–190. Stanford: CSLI Publications.
- Lundquist, Björn. 2014a. Binding and co-reference. *Nordic Atlas of Language Structures Journal* 1. 1. DOI: 10.5617/nals.5418.
- Lundquist, Björn. 2014b. Long distance binding 1: Complement clauses. *Nordic Atlas of Language Structures Journal* 1. 1. DOI: 10.5617/nals.5419.
- Lundquist, Björn. 2014c. Long distance binding 2: Relative clauses. *Nordic Atlas of Language Structures Journal* 1. 1. DOI: 10.5617/nals.5420.
- Lundquist, Björn. 2014d. Verb-particles: Active verbs. *Nordic Atlas of Language Structures Journal* 1. 1. DOI: 10.5617/nals.5372.
- Maling, Joan. 1984. Non-clause-bounded reflexives in Modern Icelandic. *Linguistics and Philosophy* 7(3). 211–241. DOI: 10.1007/bf00627706.
- Maling, Joan & Sigrídur Sigurjónsdóttir. 2002. The new impersonal construction in Icelandic. *Journal of Comparative Germanic Linguistics* 5(1–3). 97–142.
- Maling, Joan & Annie Zaenen (eds.). 1990. *Modern Icelandic syntax* (Syntax and Semantics 24). San Diego, CA: Academic Press. DOI: 10.1163/9789004373235.

- Niño, María-Eugenia. 1997. The multiple expression of inflectional information and grammatical architecture. In Francis Corblin, Danièle Godard & Jean-Marie Marandin (eds.), *Empirical issues in syntax and semantics 1*, 127–147. Bern: Peter Lang.
- Nordlinger, Rachel. 1998. *Constructive case: Evidence from Australian languages*. Stanford: CSLI Publications.
- Ørsnes, Bjarne. 2002. Case marking and subject extraction in Danish. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG '02 conference*, 333–353. Stanford: CSLI Publications.
- Ørsnes, Bjarne. 2006. Creating raising verbs: An LFG-analysis of the complex passive in Danish. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG '06 conference*, 386–405. Stanford: CSLI Publications.
- Ørsnes, Bjarne. 2011. Nonfinite *do*-support in Danish. In Olivier Bonami & Patricia Cabredo Hofherr (eds.), *Empirical issues in syntax and semantics 8*, 409–434.
- Ørsnes, Bjarne. 2013. VP anaphors and Object Shift: What do VP anaphors reveal about the licensing conditions for Object Shift in Danish? *Nordic Journal of Linguistics* 36(2). 245–274. DOI: 10.1017/s0332586513000255.
- Platzack, Christer. 1983. Existential sentences in English, German, Icelandic and Swedish. In Fred Karlsson (ed.), *Papers from the Seventh Scandinavian Conference of Linguistics*, 80–100. University of Helsinki.
- Polinsky, Maria & Eric Potsdam. 2006. Expanding the scope of control and raising. *Syntax* 9. 171–192. DOI: 10.1111/j.1467-9612.2006.00090.x.
- Postal, Paul M. 1974. *On raising: One rule of English grammar and its theoretical implications*. Cambridge, MA: The MIT Press.
- Ramhøj, Rickard. 2016. On the argument structure of raising-to-subject with passive predicates in Swedish. In Doug Arnold, Miriam Butt, Berthold Crysmann, Tracy Holloway King & Stefan Müller (eds.), *Proceedings of the joint 2016 conference on Head-Driven Phrase Structure Grammar and Lexical Functional Grammar*. Stanford: CSLI Publications.
- Ritchie, Sandy. 2017. Agreement with the internal possessor in Chimane: A mediated locality approach. *Studies in Language* 41(3). 660–716. DOI: 10.1075/sl.41.3.05rit.
- Romero, Julio Marcelo. 2015. *An LFG analysis of Swedish double definiteness expressions*. Barcelona: Pompeu Fabra University. (MA thesis).
- Rosén, Victoria. 2023. LFG treebanks. In Mary Dalrymple (ed.), *Handbook of Lexical Functional Grammar*, 1169–1206. Berlin: Language Science Press. DOI: 10.5281/zenodo.10185992.

- Sadler, Louisa & Andrew Spencer (eds.). 2004. *Projecting morphology*. Stanford: CSLI Publications.
- Schätzle, Christin, Miriam Butt & Kristina Kotcheva. 2015. The diachrony of dative subjects and the middle in Icelandic: A corpus study. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG '15 conference*, 357–377. Stanford: CSLI Publications.
- Sells, Peter. 2000. Negation in Swedish: Where it's not at. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG '00 conference*, 1–19. Stanford: CSLI Publications.
- Sells, Peter. 2001. *Structure, alignment and optimality in Swedish*. Stanford: CSLI Publications.
- Sells, Peter. 2003. Stylistic fronting in Icelandic. *Gengo Kenkyu (Journal of the Linguistic Society of Japan)* 123. 257–297.
- Sells, Peter. 2004. Syntactic information and its morphological expression. In Louisa Sadler & Andrew Spencer (eds.), *Projecting morphology*, 187–225. Stanford: CSLI Publications.
- Sells, Peter. 2005. The peripherality of the Icelandic expletive. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG '05 conference*, 408–428. Stanford: CSLI Publications.
- Sells, Peter. 2007. Finiteness in non-transformational syntactic frameworks. In Irina Nikolaeva (ed.), *Finiteness: Theoretical and empirical foundations*, 59–88. Oxford: Oxford University Press.
- Strahan, Tania E. 2008. *Sjå på han mannen!* On the definiteness and specificity of Scandinavian pronoun demonstratives. *Nordic Journal of Linguistics* 31(2). 193–226.
- Strahan, Tania E. 2009. Outside-in binding of reflexives in Insular Scandinavian. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG '09 conference*, 541–561. Stanford: CSLI Publications.
- Strahan, Tania E. 2011. A typology of non-local reflexives in the Scandinavian languages. *Nordic Journal of Linguistics* 34(2). 157–178. DOI: 10.1017/S0332586511000151.
- Teleman, Ulf, Staffan Hellberg & Erik Andersson. 1999. *Svenska akademiens grammatik*, vol. 3. Stockholm: Svenska Akademien.
- Thráinsson, Höskuldur. 1976. Reflexives and subjunctives in Icelandic. In Alan Ford, John Reighard & Rajendra Singh (eds.), *Proceedings of the 6th annual meeting of the North Eastern Linguistic Society*, 225–239. Montréal.
- Thráinsson, Höskuldur. 1979. *On complementation in Icelandic*. New York: Garland.

- Thráinsson, Höskuldur. 2007. *The syntax of Icelandic*. Cambridge, UK: Cambridge University Press. DOI: 10.1017/cbo9780511619441.
- Thráinsson, Höskuldur, Hjalmar P. Petersen, Jógvan í Lon Jacobsen & Zakaris Svabo Hansen. 2004. *Faroese: An overview and reference grammar*. Tórshavn: Føroya Fróðskaparfelag.
- Toivonen, Ida. 2002. The directed motion construction in Swedish. *Journal of Linguistics* 38(2). 313–345. DOI: 10.1017/s002222670200141x.
- Toivonen, Ida. 2003. *The phrase structure of non-projecting words: A case study of Swedish particles* (Studies in Natural Language and Linguistic Theory 58). Dordrecht: Kluwer Academic Publishers.
- Vangsnes, Øystein. 2002. Distributiv possessiv – en binominal konstruksjon. In Inger Moen, Hanne Gram Simonsen, Arne Torp & Kjell Ivar Vannebo (eds.), *Utvalgte artikler fra det niende møtet om norsk språk i Oslo 2001*, 230–243. Oslo: Novus.
- Wedekind, Jürgen & Bjarne Ørsnes. 2003. Restriction and verbal complexes in LFG – A case study for Danish. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG '03 conference*, 424–450. Stanford: CSLI Publications.
- Wedekind, Jürgen & Bjarne Ørsnes. 2004. An LFG account of the Danish verbal complex and its topicalization. *Acta Linguistica Hafniensia* 36(1). 35–64. DOI: 10.1080/03740463.2004.10415469.
- Wescoat, Michael T. 2002. *On lexical sharing*. Stanford: Stanford University. (Doctoral dissertation).
- Zaenen, Annie, Elisabet Engdahl & Joan Maling. 2017. Subject properties in presentational sentences in Icelandic and Swedish. In Victoria Rosén & Koenraad De Smedt (eds.), *The very model of a modern linguist – In honor of Helge Dyvik*, vol. 8. Bergen: Bergen Language & Linguistics Studies (BeLLS). DOI: 10.15845/bells.v8i1.1335.
- Zaenen, Annie, Joan Maling & Höskuldur Thráinsson. 1985. Case and grammatical functions: The Icelandic passive. *Natural Language & Linguistic Theory* 3(4). 441–483. DOI: 10.1007/bf00133285. Reprinted in Maling & Zaenen (1990: 95–136).