Abstract

This paper presents an account of the position of sentence adverbials in Norwegian within a left-branching HPSG-like grammar design. The assumed left-branching structures open for a treatment of Object Shift in Norwegian as part of a wider phenomenon referred to as the *Adverb Argument Intersection Field*. The approach is compared to the standard P&P analysis of Object Shift and it is shown that the two approaches make similar predictions regarding basic clause structures with full NP arguments. However, while one in P&P is forced to assume a secondary phonological movement in order to account for the position of unstressed pronoun objects with regard to sentence adverbials, no extra assumptions need to be made in the proposed account.

1 Introduction

A central topic in Scandinavian syntax is the notion of "Object Shift" (see Diderichsen (1946); Hellan (1971); Fretheim and Halvorsen (1975); Holmberg (1986, 1999); Holmberg and Platzack (1995); Hellan and Platzack (1995); Vikner (1994, 1995)). Object Shift applies when a pronoun "shifts" from its "normal" position behind the sentence adverb to the position preceding it, after the main verb. This is illustrated in (1). In (1a) the two objects appear after the sentence adverbial *ikke*. In (1b) the indirect object pronoun *henne* is "shifted" to the position before *ikke*, and in (1c), both objects (*henne* and *den*) have "shifted".

(1) a. Jon ga ikke Marit en blomst.
Jon gave not Marit a flower
Jon didn't give Marit a flower.

b. Jon ga henne ikke en blomst.
Jon gave her not a flower
Jon didn't give her a flower.

c. Jon ga henne den ikke.
Jon gave her it not
Jon didn't give it to her.

The arguments that undergo Object Shift are usually unstressed pronouns.[1] In this paper, I will show how Object Shift can be seen as a part of a wider phenomenon, involving what will be referred to as the 'Adverb-Argument Intersection Field.' The analysis that will be presented has been implemented in a grammar for

[†]I would like to thank the audience at HPSG 2012, Daejeon, South Korea, and three anonymous reviewers for their valuable comments.

[1]In Icelandic, full NPs can undergo Object Shift. This is also possible in Norwegian, but it then requires a marked intonation on the verb, and the reference of the NPs must be as salient as that of an unstressed pronoun.

Norwegian, Norsyg. It does not involve movements, just a field with certain ordering constraints. In addition, the analysis does not restrict itself to the position of sentence adverbials with regard to the objects, but also with regard to the subject.

In section 2, I will give a description of the Adverb-Argument Intersection Field. In section 3, I will present two accounts of basic clause structures in Norwegian; Diderichsen's Sentence Model, and Holmberg's P&P account. In section 4, I will give an outline of the proposed left-branching grammar formalism. In section 5, I will show how the phenomenon is treated in the Norsyg grammar. Finally, in section 6 I will compare the P&P account with my HPSG account.

2 The Adverb-Argument Intersection Field (AAIF)

An informal definition of the Adverb-Argument Intersection Field (AAIF) is given in (2).

(2) The Adverb-Argument Intersection Field is the field after the first verb or complementizer and before the following verb (if there is one).

The sentence adverbials and arguments in the AAIF obey the following ordering constraint:

(3) Unstressed pronominal arguments cannot appear in the position following a sentence adverbial.

In a main clause with a finite main verb, the clause has only one verb (and no complementizer) so the AAIF includes the sentence adverbs and arguments that appear after the verb. Since the clause has only one verb, the AAIF does not have a boundary to the right, other than the clause boundary. An example of an AAIF of a main clause with a finite main verb was given in (1), where it includes all constituents after the verb *ga* ('gave'). Given the constraint in (3), the position of the sentence adverbial with regard to the arguments is accounted for.

If a non-subject constituent is topicalized in a sentence with a finite main verb, the subject becomes a part of the AAIF. This is illustrated in (4), where the AAIF includes the sentence adverbial *ikke*, the subject, and the two objects. In (4a), the subject *Jon* is a full NP and appears after *ikke*. In (4b), the subject is the pronoun *han* ('he'), and it now appears before *ikke*. In (4c), all the arguments are pronouns, and they all precede *ikke*.

(4) a. I dag ga ikke Jon Marit en blomst.
today gave not Jon Marit a flower
Today, Jon didn't give Marit a flower.

b. I dag ga han ikke Marit en blomst.
today, gave he not Marit a flower
Today, he didn't give Marit a flower.

c. I dag ga han henne den ikke.
today gave he her it not
Today, he didn't give it to her.

Also in yes-no questions, the subject becomes a part of the AAIF, given that the main verb is finite. This is shown in (5). As in (4), the subject appears after the sentence adverbial when it is a full NP (see (5a)), and before the sentence adverbial when it is a pronoun (see (5b) and (5c)).

(5) a. Ga ikke Jon Marit en blomst?
gave not Jon Marit a flower
Didn't Jon give Marit a flower?

b. Ga han ikke Marit en blomst?
gave he not Marit a flower
Didn't he give Marit a flower?

c. Ga han henne den ikke?
gave he her it not
Didn't he give it to her?

In addition to main clauses with a main verb, also subordinate clauses and main clauses with an auxiliary (and a non-subject constituent in the first position) have an AAIF. The field then consists only of the sentence adverbial and the subject. This is illustrated in (6) and (7). In (6a) and (7a), the subject follows the sentence adverbial. This position is only possible if the subject is a full NP (*Jon*), and not an (unstressed) pronoun (*han* ('he')). In (6b) and (7b), the subject precedes the sentence adverbial. In this position, the subject can be either an unstressed pronoun or a full NP.

(6) a. at ikke Jon/*han ga Marit en blomst
that not Jon/he gave Marit a flower
that Jon didn't give Marit a flower

b. at Jon/han ikke ga Marit en blomst
that Jon/he not gave Marit a flower
that Jon/he didn't give Marit a flower

(7) a. Marit har ikke Jon/*han gitt en blomst.
Marit has not Jon/he given a flower
Marit, Jon has not given a flower.

b. Marit har Jon/han ikke gitt en blomst.
Marit has Jon/he not given a flower
Marit, Jon/he has not given a flower.

	Nexus field			Content field		
Fund.	Fin verb	Subject	Sentence adv	Inf verb	Objects	Pred adv
Jon	ga		ikke		Marit en blomst	
Jon	ga	henne	ikke		en blomst	
Jon	ga	henne den	ikke			

Figure 1: Main clause in Diderichsen's Sentence Model

	Nexus field				Content field		
Fund.	Finite verb	Subject	Sentence adv	Subject	Inf verb	Objects	Pred adv
I dag	ga		ikke	Jon		Marit en blomst	
I dag	ga	han	ikke			Marit en blomst	
I dag	ga	han henne den	ikke				

Figure 2: Main clause with topicalized predicate adverbial in Diderichsen's Sentence Model

3 Earlier accounts of Object Shift

3.1 Diderichsen's Sentence Model

The assumption that Scandinavian has a canonical position for the object and that the object under certain circumstances moves to a position preceding the sentence adverbial, with the presupposition that the position of the sentence adverbial is stable, can be traced back to Diderichsen (1946). Although the non-P&P literature does not necessarily use the term movement, two slots are made available for the realization of the objects. According to the Diderichsen Sentence Model, the canonical position of the objects is after the verb, in the Content field, as shown in Figure 1. However, unstressed pronouns can appear in the Subject slot in the Nexus field, as Figure 1 also illustrates. The sentences analyzed in Figure 1 are the examples in (1). Note that the Nexus field does not correspond to the AAIF field, as the AAIF field includes also the Content field in case the slot for infinite verbs is not filled (and the clause is not a subordinate clause).

If the Fundament slot is held by another constituent than the subject (see (4)), or if the sentence is a yes-no question (see (5)), the subject is realized in the Subject slot. However, if the subject is a full NP, as it is in (4) and (5), a secondary Subject slot is needed in the position following the sentence adverbial. This is illustrated for (4) in Figure 2. If all the arguments are unstressed pronouns, they all appear in the first Subject field.

Subordinate clauses are analyzed with a separate sentence scheme illustrated in Figure 3. The positions in the Nexus field are altered so that the slot for the finite verb comes after the subject and the sentence adverbial. Given the assumption that unstressed pronouns cannot move past the verb, they are realized in the same position as the full NPs.

	Nexus field			Content field		
Compl	Subject	Sentence adv	Fin verb	Inf verb	Objects	Pred adv
at	Jon	ikke	ga		Marit en blomst	
at	Jon	ikke	ga		henne den	

Figure 3: Subordinate clause in Diderichsen's Sentence Model

3.2 Object Shift in P&P

In P&P, the basic clause structure is accounted for by means of verb movement. While the position of the sentence adverbial is assumed to be relatively constant (attaching to T' or TP),[2] verbs can be realized in V, T or C. A verb originates in V and moves to T in order to receive Tense. As shown in Figure 4, this position is preceded by the position of the sentence adverbial. If the C position is not taken by a complementizer, the finite verb moves to a position preceding the sentence adverbial (C). Figure 4 shows the structure of a main clause where the verb *ser* has moved from V via T to C, and where the subject *Kari* has moved from the specifier position of V via the specifier position of T to the specifier position of C.

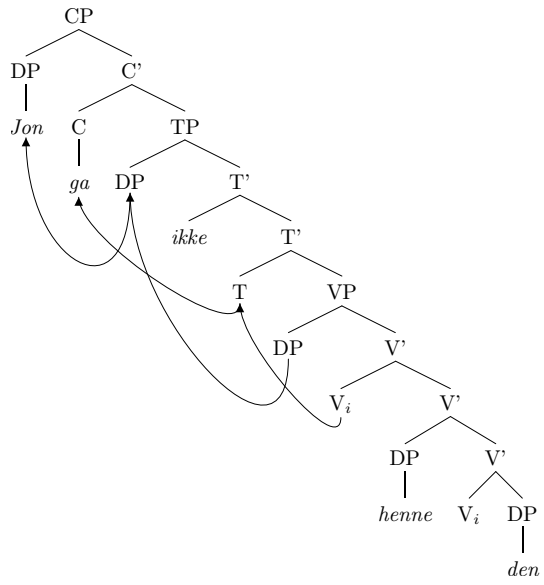

Figure 4: Main clause in P&P, before Object Shift

As shown in (1b) and (1c), it is possible for DP objects to appear in the position after a finite main verb and before the sentence adverbial. As mentioned, this is

[2]For the comparison with the left-branching grammar, I will use a P&P analysis where sentence adverbials attach to T'. This assumption is often made in the Scandinavian P&P literature. See e.g. Holmberg and Platzack (1995).

referred to as 'Object Shift', and is according to Holmberg (1999), an operation that happens after the other movements. It lets objects move to the position to the right of the next main category element to their left. A 'main category' here does not include sentence adverbials. This means that an object is allowed to move past a sentence adverbial and find its position to the right of a verb after the verb has moved. This is shown in the tree in Figure 5, where the objects attach to the verb after the verb has moved to C.[3]

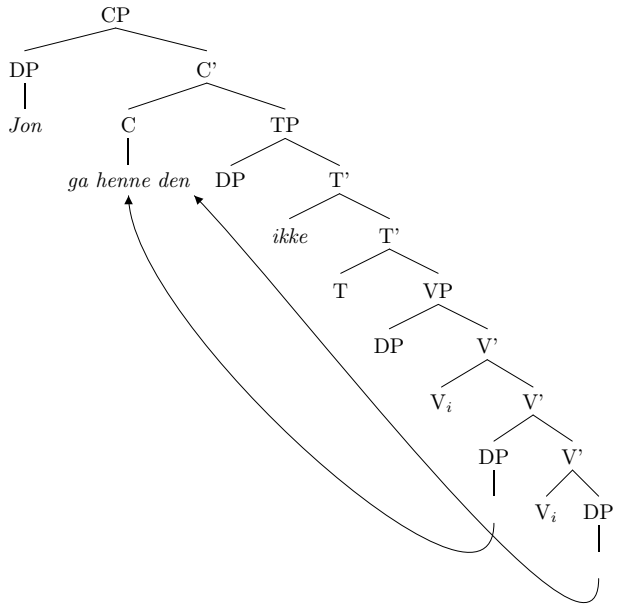

Figure 5: Object Shift in P&P

If a non-subject is topicalized, the subject will be prevented from moving to the specifier position of C and stay in the specifier position of T, with the effect that it also can undergo the same phonological movement as the objects, accounting for the data in (4). The possibility for the subject to appear after the sentence adverbial is accounted for by allowing the sentence adverbial to attach to T' or TP, and hence there is only one position for the subject (specifier of T), and not two as in the Diderichsen's Sentence Model.

In subordinate clauses, a complementizer is assumed to occupy the C position, with the result that the finite verb does not move higher than T. This means that there is no Object Shift in subordinate clauses since the verb is realized after the position of the sentence adverbial. The account of the difference in clause structure by means of verb movement is appealing since it explains why the finite verb appears before the sentence adverbial in main clauses and after the sentence adverbial

[3]The observation that Object Shift depends on the main verb moving to C is referred to as 'Holmbergs Generalization' in the P&P literature and stems from Holmberg (1986).

in subordinate clauses. The C projection also accounts for the fact that the finite verb always comes second in main clauses.

3.3 Other non-movement approaches

Sells (2001) and Börjars *et al.* (2003) account for Object Shift in Swedish by assuming a flat structure under I', where unstressed pronouns and sentence adverbials are realized. The main problem associated with the assumption of a flat structure is the number of phrase structure rules required. Given the fact that there is no upper limit to the number of possible adverbs that can appear in this field, there is no theoretical upper limit to the number of phrase structure rules required.[4]

4 A left-branching grammar of Norwegian

The assumption of the I and C projections on top of VP in P&P and the assumption of A-bar movement to the specifier position of C in main clauses, give a compelling explanation of basic clause structures in Norwegian. In this section, I will introduce a grammar fragment of Norwegian and argue that the explanatory force of verb movement and A-bar movement can be attained within the monostratal architecture of HPSG.

The grammar fragment is based on a grammar of Norwegian, Norsyg,[5] which was originally developed from the HPSG Matrix Grammar (Bender *et al.*, 2002).[6] It is a part of the DELPH-IN effort.[7] The grammar is a constructionalist grammar with a different account of the syntax-semantics interface than a regular lexicalist HPSG grammar, (see Haugereid (2007, 2009, 2012)), and a different approach to syntactic structures. The analysis presented is implemented, and is a part of the Norsyg grammar.

4.1 Overview

The grammar fragment consists of some basic phrase structure rules and function words accounting for basic syntactic structures in Norwegian. I will here focus on four types of rules:[8]

[4] See Müller (2006) for a convincing argument against flat structures.

[5] `http://moin.delph-in.net/NorsygTop`

[6] The Matrix Grammar is a language independent HPSG core grammar, and serves as the basis of several implemented HPSG grammars. Many of the types and features of the Matrix Grammar have been kept, but much has been changed, added or deleted.

[7] `http://www.delph-in.net/`

[8] The feature geometry in the implemented grammar is richer and more embedded than the one shown here. For expository reasons, I have omitted features that are not relevant for the present discussion. I have also overgeneralized with regard to what information is reentered in the SLASH list in the filler and extraction rules. In reality, only the HEAD, VAL(ENCE), CONT(ENT), and CASE features are copied across. Finally, I have not included the *force* rules that come on top of all parsed sentences in the implemented grammar. See Haugereid (2009, 151–208) for a more detailed and

1. Valence rules: These rules combine the argument with the head projection. There are two kinds of valence rules; the binary valence rules, which realize arguments in their canonical position, and the valence extraction rules, which enter arguments on a SLASH list.

2. Modifier rules:

   (a) Predicative modifier rules: There are two types of predicative modifier rules; the binary modifier rule, which combines the modifier with the head projection, and the modifier extraction rule, which enters the modifier onto the SLASH list.

   (b) Sentence adverbial rules: As with the predicative modifier rules, there are two types of sentence adverbial rules, one binary and one for extraction.

3. Verbal predicate rule: The verbal predicate rule combines verbs with the head projection.

4. Filler rule: This rule fills in the element on the SLASH list.

Some of the rule types like the rule types for valence rules have subtypes, and other rule types are omitted. The implemented grammar has a total of 69 rules.

5 Analysis

5.1 Subordinate Clauses

As mentioned, the analysis presented in this paper makes certain assumptions that differ from a standard HPSG analysis. Most importantly, it is a constructionalist approach, and the structure is not built up around the main verb. Rather, a verb may be selected by a structure headed by a complementizer or an auxiliary. This constructionalist approach allows binary left-branching structures to be built, as shown in Figure 6.[9] In this analysis, the complementizer *at* ('that') forms a fundament upon which the rest of the constituents are attached. A complementizer has the constraints shown in (8). The complementizer selects for an argument with subject case via the feature ARG(UMENT),[10] and a finite auxiliary or main verb via the feature VBL(VERBAL).[11]

precise account for Norwegian.

[9]The motivation behind the left-branching structures is given in Haugereid and Morey (2012).

[10]The function of the ARG(UMENT) feature is to allow a word or phrase to constrain the next argument that it attaches to. It can be seen as a pivot for the arguments of the clause. The grammar has an account of how the individual arguments are linked, but that will not be a topic in this paper. (See Haugereid (2007, 2009))

[11]The function of the VBL(VERBAL) feature is to let words or phrases constrain the verb following them.

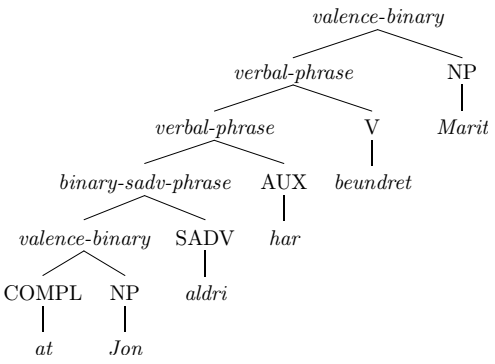

Figure 6: Analysis of *at Jon aldri har beundret Marit* ('that Jon never has admired Marit')

(8)
$$\begin{bmatrix} \textit{complementizer-word} & \\ \text{HEAD} & \textit{compl} \\ \text{ARG|CASE} & \textit{subj-case} \\ \text{VBL} & \begin{bmatrix} \text{HEAD} & \textit{aux-verb} \\ \text{TENSE} & \textit{finite} \end{bmatrix} \end{bmatrix}$$

Arguments are combined with the valence rule shown in (9), where the value of ARG of the first daughter is the second daughter.

(9)
$$\begin{bmatrix} \textit{valence-binary} & \\ \text{HEAD} & \boxed{1} \\ \text{ARG|CASE} & \textit{non-subj-case} \\ \text{ARGS} & \left\langle \begin{bmatrix} \text{HEAD} & \boxed{1} \\ \text{ARG} & \boxed{2} \end{bmatrix}, \boxed{2} \right\rangle \end{bmatrix}$$

Verbs and auxiliaries are combined with the verbal rule shown in (10). The rule, which is head-initial, unifies the value of VBL of its first daughter with the second daughter. It also unifies the VBL value of its second daughter with that of its mother, which means that a verb can constrain the following verb (if there is any). The rule also has the feature AAIF –, which expresses that the verbal rule has triggered, and that the AAIF is finished. The motivation behind this feature is that the verbal rule functions as a delimiter of the AAIF.[12]

[12]The rule is also constrained to apply after the valence rule that links the subject, and before the rules that link the objects, but this is not shown in the present analysis.

(10)
$$\begin{bmatrix} \textit{verbal-phrase} \\ \text{HEAD} \quad \boxed{1} \\ \text{ARG} \quad \boxed{3}\begin{bmatrix}\text{CASE} & \textit{non-subj-case}\end{bmatrix} \\ \text{AAIF} \quad - \\ \text{VBL} \quad \boxed{2} \\ \text{ARGS} \quad \left\langle \begin{bmatrix}\text{HEAD} & \boxed{1} \\ \text{VBL} & \boxed{4} \\ \text{ARG} & \boxed{3}\end{bmatrix}, \boxed{4}\begin{bmatrix}\textit{synsem} & \\ \text{HEAD} & \textit{aux-verb} \\ \text{VBL} & \boxed{2} \\ \text{ARG} & \boxed{3}\end{bmatrix} \right\rangle \end{bmatrix}$$

The rule for sentence adverbials is given in (11). It is a head-final rule which combines a word or phrase with a sentence adverbial. The constraint AAIF + means that it cannot apply after the verbal rule has applied.

(11)
$$\begin{bmatrix} \textit{binary-sadv-phrase} \\ \text{HEAD} \quad \boxed{1} \\ \text{AAIF} \quad \boxed{2} + \\ \text{ARGS} \quad \left\langle \begin{bmatrix}\text{HEAD} & \boxed{1} \\ \text{AAIF} & \boxed{2}\end{bmatrix}, \begin{bmatrix}\text{HEAD} & \textit{sadv}\end{bmatrix} \right\rangle \end{bmatrix}$$

The position of the AAIF of a subordinate clause is shown in Figure 7. The feature AAIF reflects where the order of arguments and sentence adverbials is not fixed, namely after the complementizer and before the finite verb, and so it is only the subject *Jon* and the sentence adverbial *aldri* which appear in the AAIF.

5.2 Main clauses

In declarative main clauses, it is assumed that the first constituent, including the subject, is extracted. This is a common assumption in the literature on Scandinavian syntax (see Holmberg and Platzack (1995)), and it has also been hinted at in Pollard and Sag (1994, 381). The idea can be traced back to Diderichsen (1946, 185).

The extraction of the first constituent is accounted for by means of a set of extraction rules, which trigger in the canonical position of the extracted element, and a filler rule, which fills in the extracted element in the position before the first verb. The dependency between the filler rule and the extraction rule is accounted for by means of a SLASH feature. An analysis of a transitive main clause with a sentence adverbial is given in Figure 8.[13]

The filler rule and the extraction rule employed in the analysis in Figure 8 are illustrated in (12) and (13). While the filler rule realizes the extracted element as its first daughter, the extraction rule links the extracted element to its ARG value and ensures that it is linked in its canonical position.

[13]The dependency between the extracted element and its trace is shown with the index *i*.

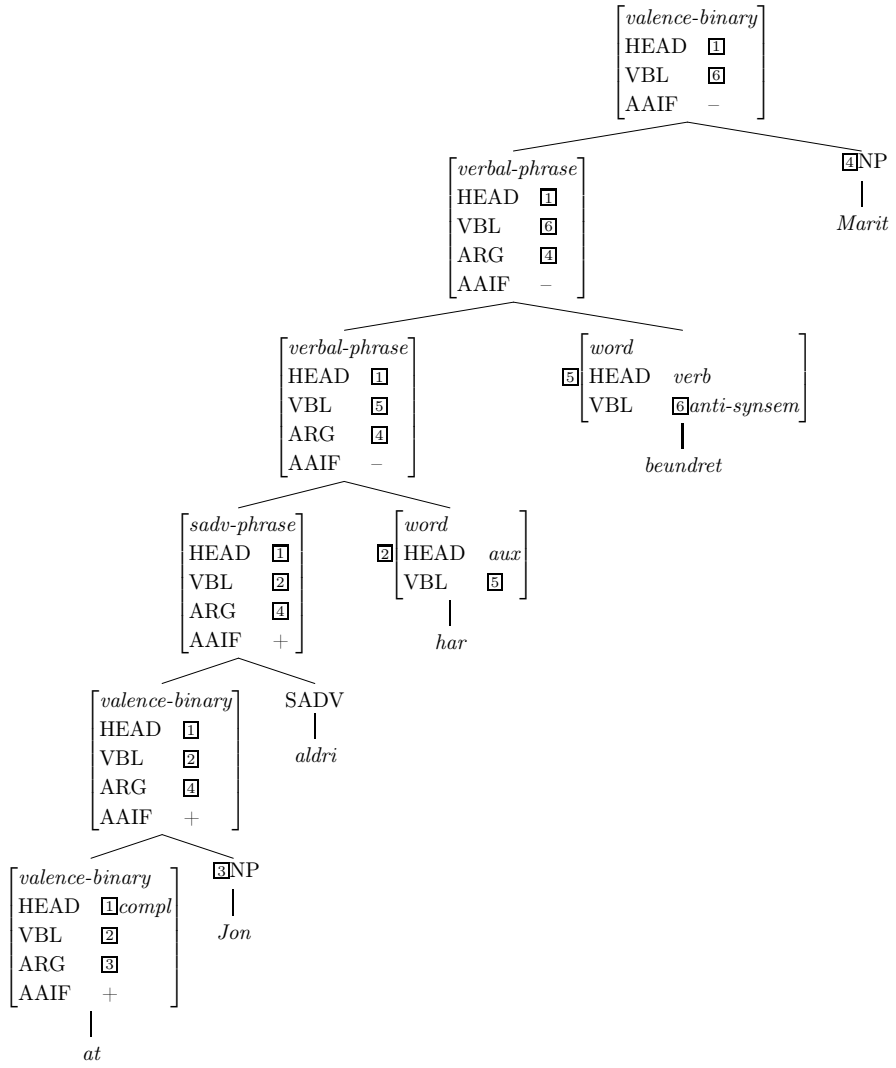

Figure 7: Analysis of *at Jon aldri har beundret Marit* ('that Jon never has admired Marit')

(12)
$$\begin{bmatrix} \textit{filler-binary} & \\ \text{HEAD} & \boxed{1}\ \textit{aux-verb} \\ \text{ARG}|\text{CASE} & \textit{subj-case} \\ \text{VBL} & \boxed{2} \\ \text{SLASH} & \langle \boxed{3} \rangle \\ \text{ARGS} & \left\langle \boxed{3}, \begin{bmatrix} \text{HEAD} & \boxed{1} \\ \text{VBL} & \boxed{2} \\ \text{SLASH} & \langle\rangle \end{bmatrix} \right\rangle \end{bmatrix}$$

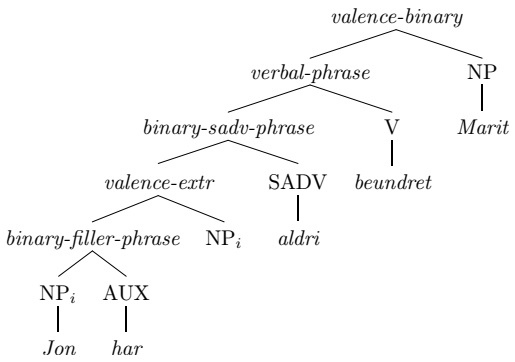

Figure 8: Analysis of *Jon har aldri beundret Marit* ('John never has admired Marit')

(13)
$$\begin{bmatrix} \textit{valence-extr} & \\ \text{HEAD} & \boxed{1} \\ \text{ARG}|\text{CASE} & \textit{non-subj-case} \\ \text{SLASH} & \langle\rangle \\ \text{ARGS} & \left\langle \begin{bmatrix} \text{HEAD} & \boxed{1} \\ \text{ARG} & \boxed{2} \\ \text{SLASH} & \langle \boxed{2} \rangle \end{bmatrix} \right\rangle \end{bmatrix}$$

A declarative main clause with a topicalized adverbial is given the analysis in Figure 9. As the tree shows, the AAIF includes all the constituents after the main verb. This means that a sentence adverbial is allowed to attach before, in between, or after the arguments.

Given the analysis presented in this section, the AAIF can be given a more formal definition than the one in (2):

(14) The Adverb-Argument Intersection Field of a clause includes the constituents attaching to the head projection before the first verbal rule.

Some additional constraints are be needed in order to prevent unstressed pronouns from appearing in the position after a sentence adverbial. This has however not been implemented since it is possible for *stressed* pronouns to appear in this position, and the grammar presented only parses text, which does not differentiate between stressed and unstressed pronouns.

6 Comparison with P&P

Although the Norsyg grammar design appears very different from the P&P approach, I would like to point out how the two approaches make similar predictions.

The fact that Norwegian is a V2 language, is in P&P accounted for by means of the C projection. The finite verb moves to C and there is space for one constituent

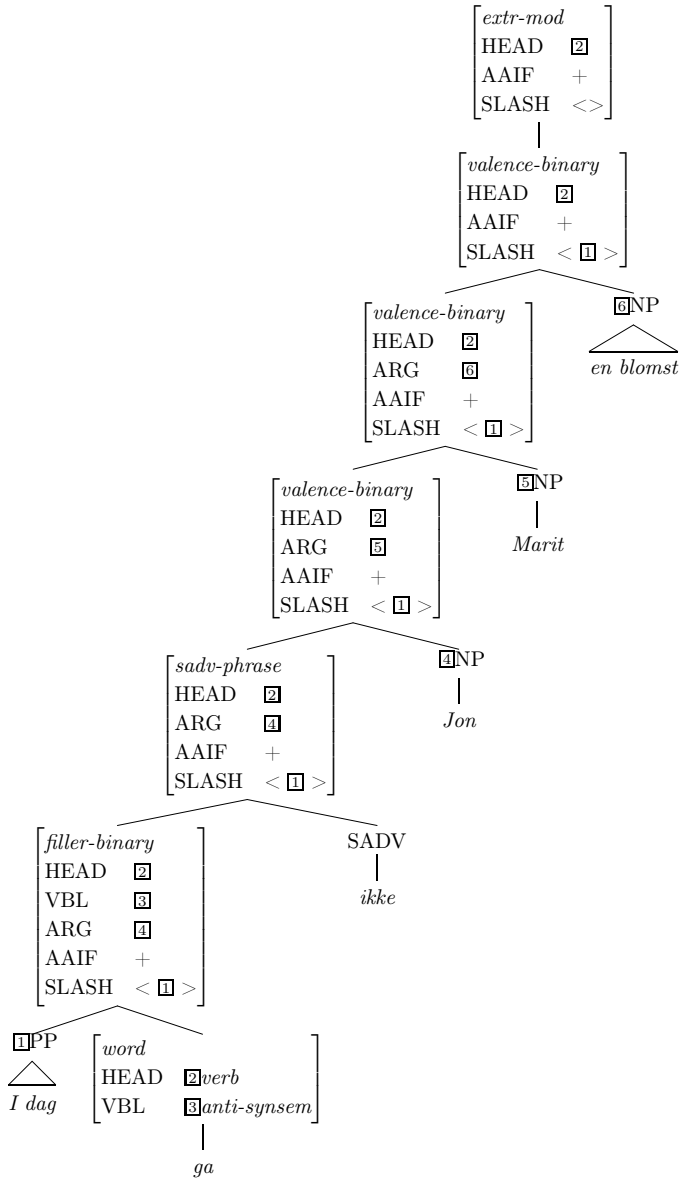

Figure 9: Analysis of *I dag ga ikke Jon Marit en blomst* ('Today, John didn't give Marit a flower')

in the specifier position of C. In Norsyg, V2 is accounted for by the filler rule (see (12)), which realizes the element on the SLASH list as its first daughter and the finite verb as the second daughter.

The syntax of subordinate clauses are in P&P accounted for by letting the complementizer block the finite verb from moving from I to C. In Norsyg, a clause initiated by a complementizer requires that the finite verb is realized by the verbal rule (see (8)). And the verbal rule will only apply after the subject has been realized

(see (10)), so the order *complementizer*, *subject*, *verb* is accounted for. The realization of the finite verb by the verbal rule in Norsyg corresponds to the realization of the finite verb in I in P&P.

The syntax of yes-no questions in P&P are accounted for by letting the finite verb move to C, but blocking constituents from moving to the specifier position of C. In Norsyg, the finite verb is simply the first daughter of the first valence or modifier rule. The realization of the verb in this position corresponds to the realization of the verb in C in P&P. Since there is no constituent preceding the verb, the SLASH list is empty.

The two approaches can be said to be similar at a certain level of abstraction. Both approaches assume that the first constituent of a main clause is not realized in its canonical position, even if it is a subject. This is also assumed in the Diderichsen's Sentence Model.

Both P&P and Norsyg account for the basic clause structure by means of the position of the finite verb, P&P by realizing it in I (subordinate clauses) or moving it to C (main clauses), Norsyg by realizing it with the verbal rule (subordinate clauses) or realizing it with the filler rule (main clauses) or as the first daughter of a valence or modifier rule (yes-no clauses).

The main difference, as I see it, is that the design in Norsyg does not require verb movement. And it is exactly verb movement that makes the P&P account of Object Shift less attractive. Since the positions of the objects are assigned before the verb moves, one is forced to assume a phonological movement that takes place after the other movements in order to account for the position of unstressed object pronouns preceding the sentence adverbial. The Norsyg approach on the other hand simply assumes a field before the application of the verbal rule (if it applies) with certain ordering constraints.

7 Conclusion

An account of the position of sentence adverbials with regard to the arguments in a clause has been presented. A field called the Adverb Argument Intersection Field was introduced. This field includes all constituents that attaches to the projection of the first verb or complementizer before the next verb is attached. In subordinate clauses and clauses with auxiliaries, the field may include only the subject and the sentence adverbial, while in main clauses, the field may include the subject as well as the indirect and direct object and the sentence adverbial. By assuming that verbs that follow an auxiliary or complementizer are attached to the projection of the initial auxiliary or complementizer by means of a particular rule, the verbal rule, it was possible to constrain the elements applying after the verbal rule to be outside the Adverb Argument Intersection Field.

The approach was compared to the treatment of nominal constituents in Diderichsen's Sentence Model and to the account of Object Shift in P&P. It was shown that while these two approaches were forced to make amendments to their theories in

order to account for the position of unstressed pronouns with regard to sentence adverbials, this is not possible with the assumption of an Adverb Argument Intersection Field.

References

Bender, E. M., Flickinger, D. P., and Oepen, S. (2002). The Grammar Matrix: An open-source starter-kit for the rapid development of cross-linguistically consistent broad-coverage precision grammars. In J. Carroll, N. Oostdijk, and R. Sutcliffe, editors, *Proceedings of the Workshop on Grammar Engineering and Evaluation at the 19th International Conference on Computational Linguistics*, pages 8–14, Taipei, Taiwan.

Börjars, K., Engdahl, E., Andréasson, M., Butt, M., and King, T. (2003). Subject and object positions in Swedish. In M. Butt and T. H. King, editors, *Proceedings of the LFG03 conference*. CSLI Publications.

Diderichsen, P. (1946). *Elementær Dansk Grammatik*. København: Gyldendal.

Fretheim, T. and Halvorsen, P.-K. (1975). Norwegian cliticization. In K.-H. Dalhlstedt, editor, *The Nordic Languages and Modern Linguistics*, volume 2, pages 446–465. Almquist & Wiksell, Stockholm.

Haugereid, P. (2007). Decomposed phrasal constructions. In S. Müller, editor, *Proceedings of the 14th International Conference on Head-Driven Phrase Structure Grammar*, Stanford, CA. CSLI Publications.

Haugereid, P. (2009). *A constructionalist grammar design, exemplified with Norwegian and English*. Ph.D. thesis, NTNU, Norwegian University of Science and Technology.

Haugereid, P. (2012). A grammar design accommodating packed argument frame information on verbs. *International Journal of Asian Language Processing*. To appear.

Haugereid, P. and Morey, M. (2012). A left-branching grammar design for incremental parsing. In S. Müller, editor, *Proceedings of the 19th International Conference on Head-Driven Phrase Structure Grammar*, Stanford, CA. CSLI Publications.

Hellan, L. (1971). *Seg, selv og syntaks*. Magisteravhandling, University of Oslo.

Hellan, L. and Platzack, C. (1995). Pronouns in Scandinavian languages: an owerview. *Working Papers in Scandinavian Syntax*, **56**, 47–69.

Holmberg, A. (1986). *Word order and syntactic features in the Scandinavian languages and English.* Edsbruk: Akademitrykk.

Holmberg, A. (1999). Remarks on Holmberg's generalization. *Studia Linguistica*, **53**, 1–39.

Holmberg, A. and Platzack, C. (1995). *The Role of Inflection in Scandinavian Syntax*. New York and London: Oxford University Press.

Müller, S. (2006). Phrasal or lexical constructions? *Language*, **82**(4), 850–883.

Pollard, C. J. and Sag, I. A. (1994). *Head-Driven Phrase Structure Grammar*. University of Chicago Press, Chicago.

Sells, P. (2001). *Structure, alignment and optimality in Swedish*. CSLI.

Vikner, S. (1994). Scandinavian object shift and West Germanic scrambling. In H. v. R. Jan Koster, editor, *Studies on Scrambling*, pages 487–517. Mouton de Gruyter, Berlin, New York.

Vikner, S. (1995). *Verb Movement and Expletive Subjects in the Germanic Lanugages*. New York and Oxford: Oxford University Press.