The Precore Slot in Icelandic: a Topological Analysis of V2-Clause Structure within Role and Reference Grammar

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The precore slot in Icelandic:
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Abstract [5] [6]

This paper aims to present an analysis of the precore slot [PrCS] in Icelandic within the theory of Role and Reference Grammar [RRG] (cf. Van Valin 2005). Based on the analysis of the PrCS in German by Diedrichsen (2008), an analysis of simple main declarative active voice sentences in Icelandic will be presented. The topological model of Danish sentence structure developed by Diderichsen (1945, 1964), which was adopted for Icelandic in Thráinsson (2007), will be used to analyze the layered structure of the clause [LSC] in Icelandic. It will be shown that the PrCS in V2-languages, such as Icelandic, has a special status and certain important aspects of the V2-phenomenon in Icelandic will be investigated. As will become clear during the course of this paper, the front position in these sentences can be equated with the RRG-notion of the PrCS. In Icelandic, different readings of modal verbs indicate the position before the finite verb should be regarded as core-external position due to the operator scope. It will therefore be assumed that an PrCS is obligatory in main declarative sentences in Icelandic.

0 Introduction

Diderichsen (1945, 1964) has developed a topological model of Danish very similar to the 'Stellungsfeldermodell' Drach (1937) developed for German. Diedrichen's (2008) work on the PrCS in German is based on this model. Thráinsson has modified Diderichsen's model for Icelandic. A simplified fashion of this is illustrated in (1) (cf. Thráinsson 2007: 19):

(1)   (cf. Thráinsson 2007: 19f)[7]

	F	k	n	v	a	?	V	N
subord.		k	n	v	a	?	V	N
main	F	v	n		a	?	V	N
a.	Strákurinn bókina	hefur			aldrei		lesið	
	the boy book	had			never		read	the
b.	Það bókina	hefur			aldrei	stákurinn	lesið	
	there book	had			never	the boy	read	the
c.	bókina	hvort	María	hefði	ekki		lesið	
	book	whether	María	had	not		read	the
d.	Bókina	hefur	María		ekki		lesið	
	the book	has	María		not		read	

---

[7] Translation and glossing for (1a, d)

   (a) Strák-ur-inn   hefur   aldrei   les-ið   bók-i-na.
        boy-MsgNOM-DET   have.3sgPRES   never   read-3sgPSPT   book.FsgACC-DET
        'The boy has never read the book.'

   (d) Bók-i-na   hefur   Marí-a   ekki   les-ið.
        book.FsgACC-DET have.3sgPRES   María-NOM   not   read-3sgPSPT
        'The book, María has never read.'

Labels are adopted from Diderichsen, except for the question mark. Their meaning is given in the following: (cf. Tráinsson 2007: 20):

(2)   (Thráinsson 2007: 20)
F = front position   v = finite verb position   k = conjunction position
n = subject position   V = non-finite verb   a = clausal adverbial
N = complement position

The positions in (1) are the same Diderichsen has assumed for Danish. However, there are two exceptions. Diderichsen does not have an alternative position for the subject, which in (1) is marked by a question mark. Diderichsen assumes that the order of position is not the same for the finite and the sentence adverb in embedded clauses. These differences are due to the fact Diderichsen has analyzed Danish. Danish is rather different from Icelandic, where in embedded clauses both the finite verb and the sentence adverb remain in the same position as in main clauses. Danish also does not have a transitive expletive construction like (1b). Hence, there is less evidence for this additional position in Danish than there is in Icelandic (cf. Thráinsson 2007: 20).

In this topological model for Icelandic, the elements in the F-position, the n-position and the N-position can move relatively freely, although there is a rather strict word order within the reference phrases [RPs]. Example (1d) shows that Icelandic has a brace construction. While in both main clauses and embedded clauses the non-finite part of the main verb is in the V-position, here, the finite auxiliary verb in the V2-position does not stand adjacent to the non-finite part of the main verb. In Icelandic, the F-position has to be occupied. The verb remains in its v-position even in cases of topicalization. In addition, with topicalization the finite verb remains in the second position of the clause in Germanic languages. This is referred to as the V2-phenomenon. The V2-phenomenon can be found in almost all modern Germanic languages except for English.

Except for the two positions F and v, none of the positions in (1) needs to be obligatorily filled in Icelandic main declarative sentences. In cases of periphrastic tense forms with intransitive verbs in Icelandic the finite auxiliary verb and the main verb which is non-finite stand adjacent to each other.

As will be shown in (3), Icelandic does not exhibit the topicalization pattern found in English. This is due to the fact that Icelandic, like German, is a V2-language:

(3) (cf. Van Valin 2005: 118)
*Sigg-u,   lögregl-a-n   fann.
 Sigga-FsgACC   police-FsgNOM-DEF   find.FsgPAST
'Sigga, the police found.'

If the undergoer (the direct object in traditional terms) of the construction should be topicalized, the verb needs to stay in its V2-position, while the undergoer occurs in the F-position as shown in (4):

(4) (cf. Van Valin 2005: 118)
Sigg-u   fann   lögregl-a-n.
Sigga-FsgACC   find.FsgPAST   police-FsgNOM
'Sigga, the police found.'

The topological model for Icelandic described above, which Thráinsson (2007: 20) adopted for Danish, is very similar to Drach's (1937) 'Stellungsfeldermodell' for German. It is also a topological model, except for the fact that Tháinsson's model is much more finely grained. Diedrichsen bases her analysis on Drach's (1937) model. She refers to Drach's 'Vorfeld' (prefield) as the F-position. In her paper 'Where is the precore slot? – Mapping the layered

structure of the clause and German sentence topology', Diedrichsen (2008) argues that the F-position in main declarative sentences equals the notion of the PrCS in RRG-terms. Since the Vorfeld or F-position has to be occupied in German sentences just as in Icelandic, German has an obligatory PrCS in main declarative sentences. In case of Icelandic, where the F-position always needs to be occupied, too, the situation is very similar. In what follows I will argue for an obligatory PrCS in Icelandic. Diedrichsen (2008) based her observation of an obligatory PrCS on the fact that some German modal verbs exhibit an ambiguity between an epistemic and a deontic reading which remains an obligatory PrCS as highly reasonable. I will further show that the situation in Icelandic is almost the same. Here, too, some modal verbs are ambiguous between an epistemic and a deontic reading.

The discussion of this paper is organized as follows: In section 1.0 and its subsections, I will give a short overview of RRG and introduce the layered structure of the clause as well as the PrCS, the semantic representation used in RRG. I will also show how the operator projection works. Section 2.0 and its subsections contain a descriptive overview of clause structure in simple main declarative active voice sentences in Icelandic. I will also describe how topicalization works in Icelandic. In section 3.0, modal verbs in Icelandic are characterized and Diedrichsen's (2008) approach of an obligatory PrCS in German is introduced. Furthermore I will develop a semantic test for the extra-core postion in Icelandic and give structural reasons for the assumption of an obligatory PrCS in Icelandic. In section 4, an RRG-analysis of Icelandic follows. I will also develop a linking algorithm from semantics-to-syntax for Icelandic to show how an RRG-analysis with an obligatory PrCS works. Additionally, theory internal reasons for the assumption of an obligatory PrCS will be given. Later on in this section a sample of three Icelandic sentences will be analyzed and their linking will be described. This paper ends with a conclusion in section 5 containing future questions regarding V2-languages and the notion of the PrCS in RRG

1.0 An overview of Role and Reference Grammar

Role and Reference Grammar [RRG] is a monostratal functionalist theory. RRG uses a single syntactic description which is semantically motivated. It does not assume abstract underlying levels of syntactic representations as they are used in Government and Binding Theory and Relational grammar (cf. Van Valin 1991: 154; cf. Van Valin 2005: 1). Also, RRG employs a semantic representation based on Aktionsarten as they are developed by Vendler (1969) and Dowty (1979). For this correspondence, RRG uses a linking algorithm, which directly links the semantic representation of the clause with its syntactic representation (cf. Van Valin 2005). Based on this, RRG is both a lexicalist and a functionalist theory (cf. Van Valin 1991: 154). Also, RRG uses a representation of information structure to account for the communicative function of the utterance (cf. Van Valin 2005: 1). Figure 1 gives a summary of the RRG linking algorithm.

As can be seen in this figure, the arrow of the linking algorithm is double-headed. This is because the linking system in RRG maps the semantic representation with the syntactic representation and vice versa (cf. Van Valin 2005: 1)
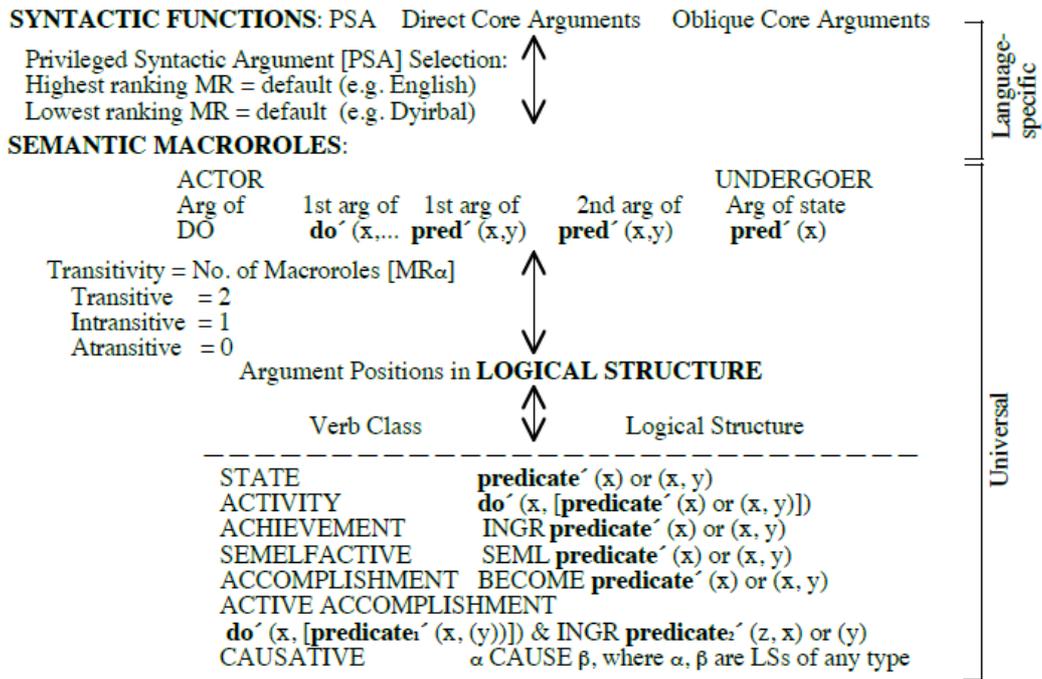
SYNTACTIC FUNCTIONS: PSA   Direct Core Arguments   Oblique Core Arguments

Privileged Syntactic Argument [PSA] Selection:
Highest ranking MR = default (e.g. English)
Lowest ranking MR = default (e.g. Dyirbal)

SEMANTIC MACROROLES:

ACTOR   UNDERGOER
Arg of   1st arg of   1st arg of   2nd arg of   Arg of state
DO   **do´** (x,... **pred´** (x,y)   **pred´** (x,y)   **pred´** (x)

Transitivity = No. of Macroroles [MRα]
 Transitive = 2
 Intransitive = 1
 Atransitive = 0

Argument Positions in **LOGICAL STRUCTURE**

Verb Class   Logical Structure

STATE   **predicate´** (x) or (x, y)
ACTIVITY   **do´** (x, [**predicate´** (x) or (x, y)])
ACHIEVEMENT   INGR **predicate´** (x) or (x, y)
SEMELFACTIVE   SEML **predicate´** (x) or (x, y)
ACCOMPLISHMENT   BECOME **predicate´** (x) or (x, y)
ACTIVE ACCOMPLISHMENT
do´ (x, [**predicate₁´** (x, (y))]) & INGR **predicate₂´** (z, x) or (y)
CAUSATIVE   α CAUSE β, where α, β are LSs of any type

Language-specific

Universal

Figure 1. The architecture of RRG (Van Valin 2005: 129)

1.1 The layered structure of the clause and the PrCS

To describe word order regularities, RRG proposes clause structure has to be represented in terms of the layered structure of the clause [LSC]. The LSC is semantically motivated and contains components which every human language has (cf. Van Valin 2005: 4). The semantic units which underlie the syntactic units of the LCS are summarized in table 1

Table 1. Semantic units underlying the syntactic units of the LSC (Van Valin 2005: 5)

Semantic element(s)	Syntactic unit
Predicate	Nucleus
Argument in semantic representation of predicate	Core argument
Non-arguments	Periphery:
Predicate + Arguments	Core
Predicate + Arguments + Non-arguments	Clause (= Core + Periphery)

Although the LSC is semantically motivated, these units are nevertheless syntactic units (cf. Van Valin 2005: 8). Apart from these syntactic units, RRG also assumes additional elements which occur in a single-clause sentence. One of these elements is the precore slot [PrCS]. In languages where question words do not occur *in situ,* this is the place for them to occur. However, the PrCS is also the place where fronted elements occur, as in *Soccer, I like* (cf. Van Valin 2005: 5). The PrCS is not attested in every language. In languages which do have it, Van Valin (2005: 8) proposes it to be pragmatically motivated. As can be seen in figure 1 the PrCS is inside the clause but it is not part of the core (cf. Diedrichsen 2008: 204).
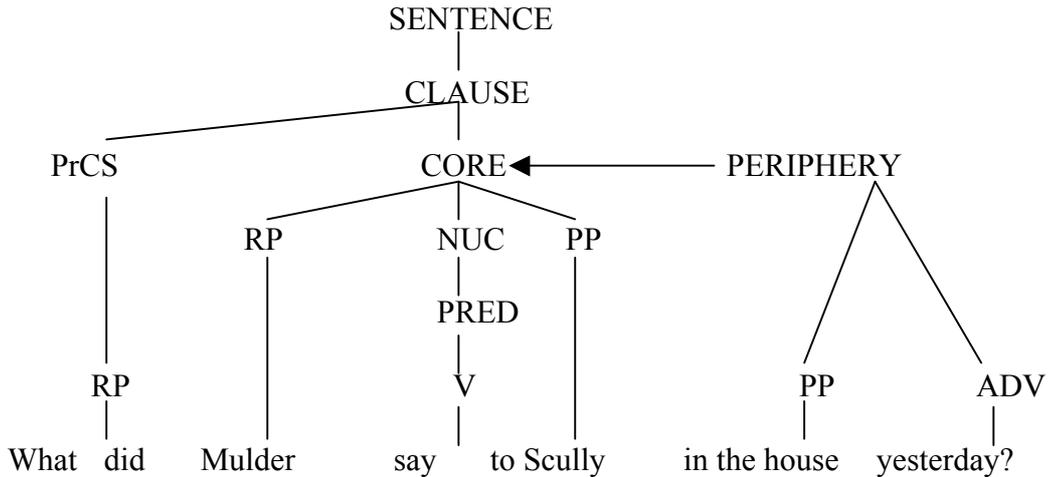
SENTENCE
|
CLAUSE
|
PrCS   CORE◄──────────── PERIPHERY
| RP   NUC   PP
| |
| PRED
| |
RP   V   PP   ADV
| | | |
What did   Mulder   say   to Scully   in the house   yesterday?

Figure 2. The LCS of an English clause (cf. Van Valin 2005: 7)

Figure 2 shows that the question word *what* occurs in the PrCS, as it is typical for languages like English, since here the question word does not occur *in situ* (cf. Van Valin 2005: 5). The verb *say* forms the Nucleus, which is the heart of both the semantic and the syntactic representation of the clause. The reference phrases [RP] *Mulder* is a direct core argument and *Scully* is an oblique core argument. This is due to the fact that is has an oblique case and is marked by a preposition. The PP *in the house* and the adverb *yesterday* from the periphery which modifies the core (cf. Van Valin 2005: 7).

1.1 Operator projection in RRG

In RRG, grammatical categories like tense, aspect and modality are not part of the LSC. Rather, they are operators modifying different layers of the LSC. Each clause layer may be modified by one or more operators (cf. Van Valin 2005: 8). These operators are introduced in table 1:

Table 2 operators in the **LCS (Van Valin 2005: 9)**

Nuclear operators:
Aspect
Negation
Directionals (only those modifying orientation of action or event without reference to participants)
Core operators:
Directionals (only those expressind the orientation or motion of one participant with reference to another participant or to the speaker)
Event quantification
Modality (root modals, e.g. ability, permission, obligation)
Internal (narrow scope) negation
Clausal operators:
Status (epistemic modals, external negation)
Tense
Evidentials
Illocutionary force

The idea behind these different types of operators is that nuclear operators modify the nucleus. They can modify the action, event or state itself and make no reference to the participants. Core operators on the other hand modify the relation between a core argument, which is normally the actor, and the action itself, while clausal operators modify the whole clause. Clausal operators fall into two classes. The first class contains tense and status and the

other class contains evidentials and illocutionary force (cf. Van Valin 2005: 9). Van Valin (2005: 11) notes that there is an ordering of operators with respect to the position of the verb. Nuclear operators have scope only over the verb and are close to the verb, while core operators are further away from the verb and have scope over nuclear operators. Clause operators have the widest scope and are the furthest away from the verb. Cross-linguistically, morphemes expressing aspect are usually closer to the nucleus than clausal operators, like status or tense. In Foley and Van Valin (1984), a large number of languages have been surveyed and no exceptions to the operator orderings in table 2 have been found (cf. Van Valin 2005: 11).

As can also be seen in table 2, status and modality, which are of interest for an analysis of the PrCS in Icelandic, are operators modifying two different layers of the LCS. I will use the term *modality* to refer to the root or deontic sense of modal verbs. This category is used to describe strong obligation, permission and weak obligation. Modality describes the relationship between a referent of the subject RP and the action in question. Modality is a core operator. The operator 'status' is used to describe epistemic modality (cf. Van Valin and LaPolla 1997: 41). As will be shown in section 3.0, for Icelandic and German epistemic modality and deontic modality share the same modal forms in some verbs, but have different meanings both semantically and syntactically. While deontic modality operates on the core layer of the operator projection, epistemic modality operates on the clause layer (cf. Van Valin and LaPolla 1997: 41). As will be shown later on, this has major consequences for the analysis of the LCS of Icelandic main declarative sentences. With respect to the formal representation of the operator projection in RRG, Van Valin (2005: 11- 2) notes that operators are technically not part of the LCS. Instead, they modify nucleus, core and clause and should be represented separately. Johnson (1987) developed a formalization of the LCS and the operator projection. This kind of formalization is called a 'projection grammar' and is shown in figure 2 (cf. Van Valin 2005: 12):
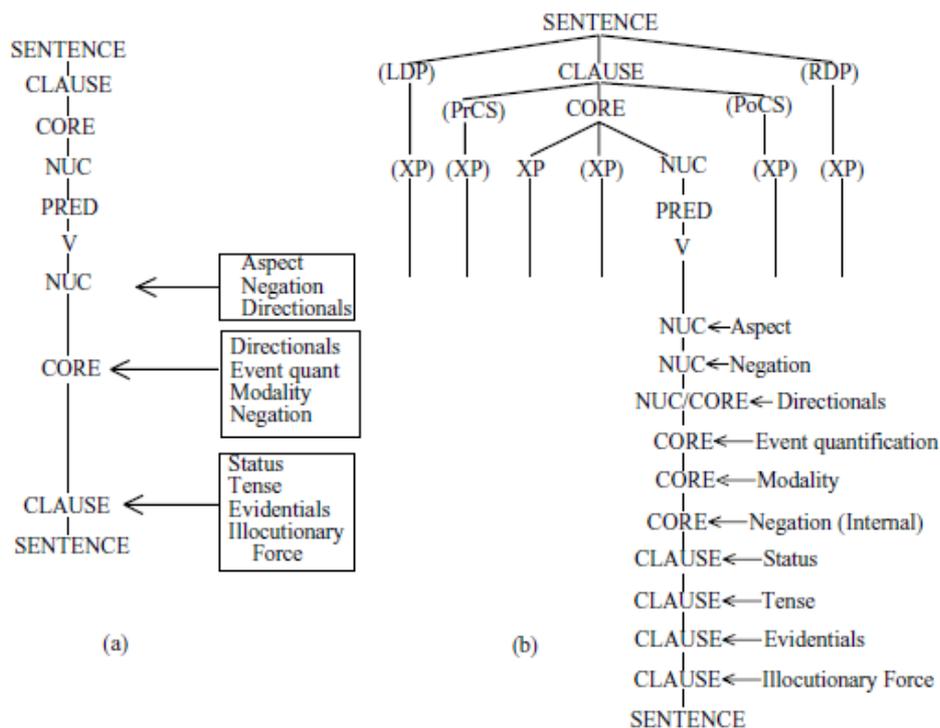

Figure 3. LSC and operator projection (Van Valin 2005: 12)

The part on top of the figure is called the 'constituent projection' and the part on the bottom of the figure is called the 'operator projection'. As can be seen in figure 3, the operator projection is connected with the constituent projection via the nucleus. This is because the nucleus is the central element of the clause and the scope of operators is defined based on their position to the nucleus (cf. Van Valin 2005: 12). This means nucleus operators are operators which are adjacent to the nucleus of the clause, while a core operator is further away from the nucleus.

1.2 The semantic representation in RRG and the use of semantic roles

RRG uses a semantic representation of clauses based on the Aktionsart classification adapted from Vendler (1967) (cf. Van Valin 2005: 31). This classification divides sentences into states, achievements, accomplishments and activities (cf. Gottschalk 2010: 21). To construct logical structures from which the LCS is projected, RRG uses an extended representation of Dowty's (1979) semantic representations of Aktionsarten (cf. Van Valin 2005: 31). However, RRG also uses several non-Vendlerian Aktionsarten. These are Semelfactives, Active Accomplishments and Process. Smith (1997) first assumed the Aktionsart Semelfactive exists and Gottschalk (2010) shows that besides the standard RRG-Aktionsarten also the Aktionsart Process exists. Except for State, each RRG-Aktionsart has a causative counterpart which describes semantic differences in which a cause, for example a change in condition, can be identified (cf. Gottschalk 2010: 21). Aktionsarten in RRG are described along the lines of the following binary features:

(5) (Gottschalk 2010: 21)

State:	[+ static], [- dynamic], [- telic], [- punctual]
Activity:	[- static], [+ dynamic], [- telic], [- punctual]
Achievement:	[- static], [± dynamic], [+ telic], [+ punctual]
Semelfactive:	[- static], [± dynamic], [- telic], [+ punctual]
Process:	[- static], [- dynamic], [- telic], [- punctual]
Accomplishment:	[- static], [- dynamic], [+ telic], [- punctual]
Active Accomplishment:	[- static], [+ dynamic], [+ telic], [- punctual]

In RRG, a number of syntactic and semantic tests are used to determine the Aktionsart of a verb. The lexical representations used in RRG are adapted from Dowty (1979). These lexical representations deliver semantic processes, which are described by the Aktionsarten. The semantic representations used in RRG are called logical structures [LSs]. An overview is given in (6):

(6) (Gottschalk 2010: 22)

State	**predicate´**(x) or (x, y)
Activity	**do´**$(x, [$**predicate´**(x) or $(x, y)])$
Achievement	INGR **predicate´**(x) or (x, y) or
	INGR **do´**$(x, [$**predicate´**(x) or $(x, y)])$
Semelfactive	SEML **predicate´**(x) or (x, y) or
	SEML **do´**$(x, [$**predicate´**(x) or $(x, y)])$
Process	PROC **predicate´**(x) or (x, y)
Accomplishment	PROC **predicate´**$(x, (y))$ & INGR **predicate´**$((z), y)$
Active Accomplishment	**do´**$(x, [$**predicate´**$(x, (y)))])$ & INGR **predicate´**$((z), y)$
Causative	α CAUSE β where α, β, are LSs of any type

The semantic representation of the clause is based on the LSs given in (6) (cf. Van Valin 2004: 11). In RRG, the LSCs of specific languages are stored as syntactic templates in the syntactic inventory (cf. Van Valin 2005: 15). The principle governing the selection of syntactic templates is given in (4) (cf. Van Valin 2004: 11):

(7)   Syntactic template selection principle (Van Valin 2004: 11)

> The number of syntactic slots for arguments within the core is equal to the number of distinct specified argument positions in the semantic representation of the core

As Van Valin (2004: 11) notes, there are several language-specific and construction-specific restrictions on this principle. However, this projection determines which syntactic template is chosen adequately.

In RRG semantic roles are also of crucial importance. These are the semantic marcroroles actor and undergoer, which are the two primary arguments of transitive verbs. Intransitive verbs take either an actor or an undergoer as macrorole (cf. Van Valin 2005: 60-2). An example of actor and undergoer is given in (8)

(8) (cf. Van Valin 2004: 12-3)
a.   Mulder [Actor] beat Krycek [Undergoer].
b.   Krycek [Undergoer] is beaten by Mulder [Actor].
c.   Mulder [Actor] is writing.
d.   The cigarette-smoking-man [Undergoer] died.

As Van Valin (2004: 12) notes, the selection of actor and undergoer in LSs is governed by a general principle called the actor-undergoer-hierarchy [AUH], which is given in figure 4:
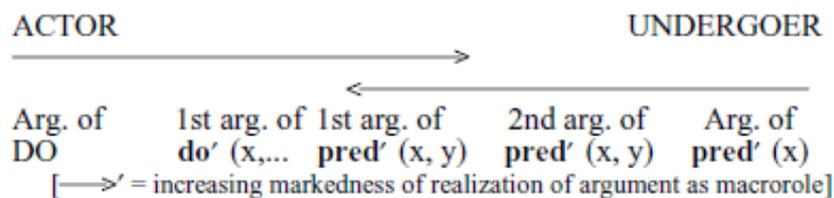

Figure 4. Actor-Undergoer-Hierarchy (Van Valin 2005: 61)

The AUH simply states that in an LS of a transitive verb, the leftmost argument in this LS will be the actor while the rightmost argument will be the undergoer (cf. Van Valin 2005: 12).

In syntactically accusative languages like Icelandic, German or English, the default choice for the subject - which in RRG-terms is the privileged syntactic argument [PSA] - is the actor with transitive verbs, while in passive constructions the undergoer functions as PSA (cf. Van Valin 2004: 14). As noted in Van Valin (2005: 115), there is no syntactic relation corresponding to direct or indirect objects in RRG. Instead, these positions are referred to as marcroroles. This will be important for the analysis of Icelandic clauses in section 2.

1.6 The privileged syntactic argument

In Van Valin (2005: 89) it is noted that grammatical relations like subject, direct object and indirect object, as they are proposed in the traditional generative literature, are not universal. Therefore, RRG uses the notion of the 'privileged syntactic argument' [PSA] to refer to restricted neutralizations of semantic roles and pragmatic functions for syntactic purposes (cf. Van Valin 2005: 89). The PSA is construction specific, since in some languages, like Jakaltek and Sama, there are several PSAs for the major grammatical constructions (cf. Van Valin: 94). Languages have a privileged syntactic argument selection hierarchy and privileged syntactic argument selection principles which are given in (9) and (10):

(9)
Privileged syntactic argument selection hierarchy (Van Valin 2005: 100):
arg. of DO > 1st arg. of **do´** > 1st arg. of **pred´**(x, y) > 2nd arg. of **pred´**(x, y) > arg. of **pred´**(x)

(10) (Van Valin 2005: 100)
Accessibility to privileged syntactic argument principles
    a. Accusative constructions: highest ranking direct core argument in terms of (XX) (default)
    b. Ergative constructions: lowest ranking direct core argument in terms of (XX) (default)
    c. Restrictions on PSA in terms of macrorole status:
        1. Languages in which only macrorole arguments can be PSA: German, Italian, Dyirbal, Jakaltek, Sama, …
        2. Languages in which non-macrorole direct core arguments can be PSA: Icelandic, Georgian, Japanese, Korean, Kinyarwanda, …
    d. Restrictions on PSA in terms of coding (Bickel 2003a)
        1. Languages with case-sensitive PSAs, e.g. English, German, Nepali, Maithili …
        2. Languages with case-insensitive PSAs, e.g. Behare, Tibetian, …

Van Valin (2005: 100) notes that the privileged syntactic argument hierarchy is very similar to the AUH in that it refers to the same argument positions in the LSs. However, one important difference is that it is unilateral and takes agent, which is an argument of DO, as the highest ranking and patient, which is an argument of **pred**´(x), as the lowest ranking semantic role. If a verb is M-transitive and takes both actor and undergoer, then the actor will be the highest argument in terms of the privileged syntactic argument selection hierarchy in (9). Since the actor is the highest-ranking argument in the AUH, it is also the highest ranking argument in the privileged syntactic argument selection hierarchy. With M-intransitive verbs, the single macrorole is the highest ranking one or the lowest ranking one for the purposes of (10b). For the selection of the PSA this means that the single argument is the PSA (cf. Van Valin 2005: 100). Van Valin (2005: 95) characterizes PSAs functionally as controllers and pivots, as shown in (11):

(11) (cf. Van Valin 2005: 95)
a.   Mulder$_i$ slapped Kryzek$_j$ and then __$_{i/*j}$ ran away.
        CONTROLLER   PIVOT
a'.   Kryzek$_i$ was slapped by Mulder$_i$ and then __$_{i/*j}$ ran away.
        CONTROLLER   PIVOT
b.   Mulder ran down to the desk and __slapped Kryzek.
        CONTROLLER   PIVOT
b'.   *Mulder$_i$ ran down to the desk and Kryzek slapped __$_i$.
        CONTROLLER   PIVOT
b''.   Mulder ran down to the desk and __ was slapped by Kryzek.
        CONTROLLER   PIVOT

As noted by Van Valin (2005: 96), this construction has one PSA in each clause. First, there is the controller in the matrix clause and second there is the pivot, which is the omitted RP in the second clause. The PSA in RRG terms is equal to the subject in the traditional generative literature. As shown in (11a) it is impossible for the undergoer of the transitive verb to be the controller or the pivot as shown in (101'). Having the actor of a passive verb as the controller is also impossible, as shown in (11a') (cf. Van Valin 2005: 96).

In RRG, the two restricted neutralizations of the PSA can be characterized as follows: The neutralization of the actor of an intransitive verb and of the undergoer of an intransitive verb. Van Valin (2005: 96) cites Dixon (1972) as reference and explains that this 'intransitive subject' function is referred to as 'S' in Dixon's framework. Some languages such as Acehnese lack the S-function. Van Valin (2005: 96) also introduces 'A$_T$' which refers to the actor of a transitive verb, and 'U$_T$' which refers to the undergoer of a transitive verb. The passive verb on the other hand is a derived intransitive verb in most languages. Because of this, the single core argument of a passive verb will be referred to as 'derived-S' [d-S]. This means that the restricted neutralization in German, Icelandic and the control constructions in English can be represented by the following pattern: [S, A$_T$, d-S]. The semantics of this pattern is such that the single argument of an intransitive verb, for which it is not important if

it is actor or undergoer, the actor of a transitive verb, and the single argument of a transitive verb function alike in these constructions (cf. Van Valin 2005: 97).

Not all languages have neutralization patterns as German and English do. In fact, several patterns of restricted neutralization are found in human languages. These are summarized in table 2 (cf. Van Valin 2005: 98-9):

Table 3 Restricted neutralization patterns of semantic roles

	Intransitive Verbs	Transitive Verbs	Grammatical relations	PSA(s)
Acehnese	no	no	no	[A], [U]
English	yes	yes	yes	[S, A_T, d-S]
Kambera	yes	no	yes	[S, A_T]
Kalkatungu	yes	yes	yes	[S, U_T, d-S]

(Van Valin 2005: 99)

1.7 The RRG linking algorithm

The linking algorithm as described in section 1.0 is bidirectional in that it links the semantic representation with the syntactic representation and vice versa. This algorithm has often been viewed in terms of a language processing model, in which the semantics-to-syntax linking describes the production process while the syntax-to-semantics linking is an aspect of the comprehension process (cf. Van Valin 2005: 129).

The basic idea within the comprehension process is that the parser uses the input to produce a structured syntactic representation to generate a structured representation of the clause. In this representation, the elements of the LSC, cases, adpositions and all other elements which are grammatically relevant, are identified (cf. Van Valin 2005: 129). It is the task of the grammar to map the LCS and the operator projection into the semantic representation of the clause. For the interpretation of this mapping, the syntax-to-semantic linking algorithm is required (cf. Van Valin 2005: 129).

In semantics-to-syntax linking, an inheritance process within the lexicon maps the lexical elements into the LS, which is the output of the lexicon (cf. Gottschalk 2010). Once the LSs are produced, it is the task of the grammar to project the LSC and all other grammatically relevant elements from the LS in question. Both the semantics-to-syntax-linking and the syntax-to-semantics linking is governed by a general constraint which is called completeness constraint introduced in (12):

(12)
Completeness Constraint (Van Valin 2005: 130)
All of the arguments explicitly specified in the semantic representation of a sentence must be realized syntactically in the sentence, and all the referring expressions in the syntactic representation of a sentence must be linked to an argument position in a logical structure in the semantic representation of the sentence.

The completeness constraint is extremely important to guarantee a matching number of arguments in the clause and the LS of the verb. It is also crucial that the semantic representation of a sentence is built around the LS of the verb (cf. Van Valin 2005: 130). As shown in Gottschalk (2010), the LS is put together in the lexicon by inheritance. Van Valin (2005: 130) explains that the semantic representation is crucial for the semantics-to-syntax-linking. The same holds true for the selection of the syntactic templates which constitute the LSC.

The syntactic templates are stored in the syntactic inventory. There are several principles governing the selection of the appropriate core template (cf. Van Valin 2005: 130). These principles are given in (12):

(13)
> Syntactic template selection principle (Van Valin 2005: 130)
> a. The number of syntactic slots for arguments and argument-adjuncts within the core is equal to the number of distinct specified argument position in the semantic representation of the core.
> b. Language-specific qualifications of the principle in (a):
>> 1. All cores in the language have a minimum syntactic valence of 1.
>> 2. Argument-modulation voice constructions reduce the number of core slots by 1.
>> 3. The occurrence of a syntactic argument the pre/postcore slot reduces the number of core slots by 1 (may override (1) above).

There is a default principle in (11a) which states that if a verb takes *n* arguments, there need to be *n* positions in the core for arguments to appear in it. This is necessary for the completeness constraint to be satisfied. However, there are also exceptions in (11b) which are language-specific. All of these constraints apply for English. English requires a dummy subject for argument-less verbs like *rain*. English also has a passive and WH-words appear in the PrCS. However, this is not the case in languages where question verbs occur *in situ* (cf. Van Valin 2005: 130).

The algorithm linking semantics to syntax is given in (14). It will be of crucial interest for the analysis of clause structure in Icelandic:

(14) (Van Valin 2005: 136)
Linking algorithm: semantics → syntax
> 1. Construct the semantic representation of the sentence, based on the logical structure of the predicator.
> 2. Determine the actor and undergoer assignments, following the actor-undergoer hierarchy […]
> 3. Determine the morphosyntactic coding of the arguments
>> a. Select the privileged syntactic argument, based on the privileged syntactic argument selection hierarchy and principles […]
>> b. Assign the arguments the appropriate case markers and/ or adpositions.
>> c. Assign the agreement marking to the main or auxiliary verb, as appropriate.
> 4. Select the syntactic template(s) for the sentence following the syntactic template selection principle.
> 5. Assign arguments to positions in the syntactic representation of the sentence.
>> a. Assign the [-WH] argument(s) to the appropriate positions in the clause.
>> b. If there is a [+WH] argument of a logical structure,
>>> 1. assign it to the normal position of a non-WH-argument with the same function, or
>>> 2. assign it to the precore or postcore slot, or
>>> 3. assign it to a position within the potential focus domain of the clause (default = the unmarked focus position).
>> c. A non-WH argument may be assigned to the precore or postcore slot, subject to focus structure restrictions (opitional).
>> d. Assign the [-WH] arguments(s) of a logical structure(s) other than that of the predicator in the nucleus to
>>> 1. a periphery (default), or
>>> 2. the precore or postcore slot, or
>>> 3. the left- or right-detached position

The linking from syntax-to-semantics is more difficult than the linking from semantics-to-syntax. This is because it involves the interpretation of the overt morphosyntactic form of a sentence and deducing the semantic functions of the elements in the sentence from it (cf. Van Valin 2005: 149). The syntax-to-semantics linking algorithm is shown in (15):

(15) (Van Valin 2005: 149-50)
Linking algorithm: syntax → semantics
1. Determine the macrorole(s) and other core argument(s) in the clause.
   a. If the verb is intransitive, then assign the privileged syntactic argument either macrorole or direct core argument status, depending upon the language (language-specific).
   b. If the verb is transitive and the language lacks voice opposition, determine the macroroles from case marking and/or word order (language-specific).
   c. If the language has voice opposition, determine the voice of a transitive verb (language-specific):
      1. If the construction is syntactically accusative:
         a. If it is the unmarked voice, the privileged syntactic argument is actor.
         b. If it is passive, the privileged syntactic argument is not the actor of the predicate in the nucleus;
            1. the actor may appear as a direct core argument (language-specific); or
            2. the actor may appear in the periphery$_{CORE}$ marked by an adposition or an oblique case (language-specific); or
            3. if there is no actor in the core or the periphery, then replace the variable representing the highest ranking argument in the logical structure with 'Ø'
      2. If the construction is syntactically ergative:
         a. If it is the unmarked voice, the privileged syntactic argument is undergoer.
         b. If it is antipassive, the privileged syntactic argument is actor:
            1. the undergoer may appear as a direct core argument or as an oblique element (language-specific);
            2. if there is no undergoer in the core the periphery$_{CORE}$, then replace the variable representing the lowest ranking argument u the logical structure with 'Ø'-
      3. Assign macrorole status to the other direct core argument, if it is not dative or in an oblique case (language-specific).
   d. If the language is head-marking and there are independent NPs in the clause, associate each NP with a bound argument marker (language-specific).
2. Retrieve from the lexicon the logical structure of the predicate in the nucleus of the clause and with respect to it execute step 2 from (11), subject to the following provisio:
   a. If the language allows variable undergoer selection and if there is more than one choice for undergoer, do not assign undergoer to an argument in the logical structure.
   b. Determine the linking of the non-macrorole core argument:
      1. If there is a two-place state predicate in the logical structure and if the non-macrorole core argument is marked by a locative adposition or dative or a locative-type case, then link it with the first argument position in the state predicate or,
      2. If there is a two-place state predicate in the logical structure and if the non-macrorole core argument is not marked by a locative adposition or dative or a locative-type case, then link it with the second argument position in the state predicate and link the other non-actor core argument (if there is one) to the first argument position in the state predicate.
      3. Otherwise, link the animate NP with the first argument position in the state predicate in the logical structure.
3. Link the arguments determined in step 1 with the arguments determined in step 2 untul all core arguments are linked.
4. If there is a predicative adpositional adjunct, then retrieve its logical structure from the lexicon, insert the logical structure of the core as the second argument in the logical structure and the object of the adposition in the periphery as the first argument.
5. If there is an element in the pre- or postcore slot (language-specific),
   a. Assign it the remaining unlinked argument position in the semantic representation of the sentence.
   b. And if there are no unlinked argument positions in the sentence, then treat the WH-word like a predicative preposition and follow the procedure in step 4, linking the WH-word to the first argument position in the logical structure.

After this detailed overview of RRG, a topological analysis of Icelandic clause structure will follow in section 2.

2.0 Basic word order in Icelandic

Icelandic is said to be a SVO-language. However, it is also sometimes claimed that the word order is relatively free due to the rich morphology Icelandic exhibits (cf. Thráinsson 2007: 21). In Icelandic, a three-valued gender system is found, which consists of masculine [m], feminine [f] and neuter [n]. The nominal categories noun, adjective, article and pronoun have four cases: nominative [NOM], accusative [ACC], dative [DAT] and genitive [GEN]. With nouns, the inflectional paradigms vary depending on gender and inflectional class of the noun. Adjectives on the other hand modify nouns and agree with them in gender, case and number. Inflections for nouns and adjectives are realized as suffixes, which are attached to the noun or adjective stem (cf. Thráinsson 2007: 2). Articles in Icelandic are usually suffixed after the suffix used for case marking and have their own inflection for gender, number and case (cf. Thráinsson 2007: 2). Finite verbs agree with the PSA in Icelandic in person and number. The basic Icelandic perfect is a periphrastic tense form and is formed with an auxiliary and an uninflected past participle of the main verb, which is referred to as supine (cf. Thráinsson 2007: 10-1). With respect to auxiliaries in Icelandic it is important that they do not form a separate inflectional class. Thus, the verbs which are most frequently listed show rich agreement morphology like other verbs and also inflect for tense (cf. Thráinsson 2007: 10). I will refer to the occurrence of finite and non-finite verbs in section 4, when I develop a semantics to syntax linking algorithm for Icelandic.

The sentences in (16) show simple examples of PSAs and undergoers[8] occupying different positions within the topological model for Icelandic:

(16) (Tráinsson 2007: 21)

a.   Marí-a   elska-r   Harald-Ø
         María-FsgNOM love-3sgPRES   Haraldur-MsgACC
         'Mary loves Harold.'

b.   Harald-ur   elska-r   Marí-u
         Haraldur-MsgNOM   love-3sgPRES   María-FsgACC
         'Harold loves Mary.'

c.   Harald-Ø   elska-r   Marí-a
         Haraldur-MsgACC   love-3sgPRES   María-FsgNOM

María is marked with nominative case. In RRG-terms it is the PSA in both (16a) and (16c). *Haraldur* is marked with accusative case in (16a) and (16c). Hence, it is the undergoer of the construction. The PSA in the F-postion in (16a) is the default word order in Icelandic, while sentences in (16c) are marked and are an example of topicalization in Icelandic (cf. Tháinsson 2007: 21).

As already said in section, 1.0 Icelandic is a V2-language. This means that even in cases of topicalization as in (16c), the finite verb needs to remain in the second position of the clause.

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[8] In all these sentences the PSA is marked nominative case and no examples of quirky case is found. I will refer to the PSA selection in Icelandic in section 4 in detail. Since in all these examples sentences in the active voice are analyzed I will call the counterpart of the PSA in the examples cited in this section undergoer. This is due to the fact that the default marcrorole for the PSA in Icelandic active voice sentences is the actor which is usually marked with nominative case and the non-PSA which is identical with the traditional notion of the object usually is the undergoer. However notions like direct objects do not exist in RRG (cf. Van Valin 2005: 115). Therefore I will use the RRG-term undegoer to refer to direct objects in this section.

RPs are relatively free in occupying different positions in the topological model Thráinsson (2007: 23) suggests for Icelandic based on Diderichsen (1947, 1964). This is shown in (17):

(17)   (cf. Thráinsson 2007: 21)
a.   student-ar-nir   höfðu   aldrei   séð   Þessa
        student-MplNOM-DET   have.3plPAST   never   see.SUP this
        mynd-Ø   í fyrra.
        film-MsgACC   last year
        'The students have never seen this film last year.'
b.   Ì fyrra   höfðu   student-ar-nir   aldrei   séð   Þessa
        last year have.3plPAST   student-MplNOM-DET   see.SUP this   mynd-Ø
        film-MsgACC
        'Last year the students have never seen this film last year.'
c.   Það   höfðu   student-ar-nir   aldrei   séð
        Þessa   there   have.3plPAST   student-MplNOM-DET   never   see.SUP this
        mynd-Ø   í fyrra.
        film-MsgACC   last year
        lit. 'There had the students never seen this film last year.'

As can be seen in this example, the PSA can either occupy the F-position as in (17a), while the PP occupies the N-position or the PSA occupies the n-position, while the PP is in the F-position as in (17b). However, the F-position can also be occupied by a transitive expletive construction as in (16c). This is however not possible in Mainland Scandinavian languages (cf. Thráinsson 2007: 23). Also a shift of full undergoer RPs is possible, as will be shown in (18b). Such a construction is also not possible in Mainland Scandinavian languages (cf. Thráinsson 2007: 23):

(18) (Thráinsson 2007: 23)
a.   Stúdent-ar-nir   sáu   aldrei   Þessa   mynd-Ø
        student-3plACC-DET   see.3plPAST   never   this   film-MsgACC
        í fyrra.
        last year.
        'The students never saw this film last year.'

The sentences in (17) contain the auxiliary verb *hafa* 'have' and exhibit a brace construction, where the finite auxiliary verb does not stand adjacent to the main verb which is non-finite. The example in (18) on the other hand does not have an auxiliary but a finite main verb in the V2-position. (cf. Tháinsson 2007: 23). From these examples one can conclude the following:

(19)
    1. The position of the finite auxiliary and the finite main verb is always the V2-position in main declarative sentences in Icelandic.
    2. The position of the non-finite verb in main declarative sentences in Icelandic is the V-position.
    3. The PSA can either occur in the F-position or in the n-position
    4. The position of topicalized prepositional phrases is in the F-position while they normally occur in the N-position.
    5. The position of the undergoer in the accusative case can either be the ?-position or the N-position.
    (cf. Tháinsson 2007: 23f)

The examples in (20) will show that the default position of time and place adverbials is usually the end of the sentence with the place adverbial preceding the time adverbial just as it is the case in English:

(20) (Thráinsson 2007: 24f)

a.	Stúdent-ar-nir	sáu	Þessa	mynd-Ø	íReykjavík
	student -MsgNOM-DET	see.3plPAST	this	film-MsgACC	in Reykjavik

í fyrra.
last year
'The students saw this film in Reyjavik last year.'

b.	?stúdent-ar-nir	sáu	Þessa	mynd-Ø	í fyrra
	students-MsgNOM-DET	see.3plPAST	this	film-MsgACC	last year

í Reykjavik.
in Reykjavik
*'The students saw this film last year in Reykjavik.'

2.1 Alternative PSA-positions

Based on Tháinsson's (2007: 26) analysis, the PSA in Icelandic can occur in one of the following positions in (21) while the different PSA-positions mentioned in (21) are exemplified in (22).

(21) PSA-positions in Icelandic sentences (cf. Thráinsson 2007: 26)
a. The F-position in main clauses (22a)
b. The n-position in embedded clauses (22b)
c. The n-position in main clauses with an undergoer in the F-position (22c).
d. the ?-position which is right after the a-position (22d).

(22) (cf. Thráinsson 2007: 19)

a.	Strák-ur-inn	hefur	aldrei		les-ið	bók-i-na
	boy-MsgNOM	have.3sgPRES	never		read-SUP	book-FsgACC-DET
b.	Það	hefur	aldrei	sták-ur-inn	les-ið	bók-i-na
	there	have.3sgPRES	never	boy-MsgNOM	read-SUP	book-FsgACC-DET
c.	hvort	Marí-a	hef-ði	ekki	les-ið	bók-i-na
	whether	María-NOM	have-3sgPERF	not	read-SUP	book-FsgACC-DET
d.	Bók-i-na	hefur	Mar-ía	ekki	les-ið	
	book-FsgACC-DET	have.3sgPRES	María-NOM	not	read-SUP	

The sentences in (23) will show that the PSA (in bold face) can intervene between an intransitive verb like *vera* 'be' and a locative phrase following, but, as will be shown in (24), it cannot intervene between a transitive verb like *lesa* 'read' and its undergoer (cf. Tháinsson 2007: 26).

(23) (Tháinsson 2007: 26)

a.	… hvort Það	hefur	**útlending-ur-inn**
	whether there	have.3sgPRES	foreigner-MsgNOM-DET

ver-ið   í sumarhúsin-u.
be-PSPT in summer house-FsgDAT
'… whether there has been some foreigner in the summer house.'

b.	…hvort Það hefur	ver-ið	**útlending-ur-inn**	í sumarhúsin-u.
	whether there have.3sgPRES	be-SUP	foreigner-MsgNOM-DET	in summer houseFsgDAT

'… whether there has been some foreigner in the summer house.'

(24) (Tháinsson 2007: 26)

a.	… hvort Það	hefur	**útlendig-ur-inn**
	whether	there	have.3sgPRES	foreigner-MsgNOM-DET

les-ið   bók-Ø-ina
read-SUP   book-FsgACC-DET
'… whether some foreigner has read the book.'

b.	*… hvort	Það	hefur	les-ið
	whether	there	have.3sgPRES	read-SUP

útlending-ur-inn
foreigner-MsgNOM-DET

However, there are some further examples which are relevant to find out more about PSA-positions in Icelandic:

(25) (Tháinsson 2007: 27)
a. Ì fyrra   voru   í sumarhúsin-u   **[gest-ir-inn**
    last year be.3plPAST   in the summer house-FsgDAT   guest-MsgNOM-
    [gest-ir-inn   frá   Færey-jum].
    guest-MsgNOM-DET   from   Faroe Islands-NplDAT
    'Last year the guest from the Faroe Islands were in the summer house.'
b. Ì fyrra   lásu   bók-i-na   **[bókmenntagagnýrend-ur-nir]**
    last year read.3plPAST book-FsgACC-DAT literary critic-MplNOM-DET
    'Last year the literary critics read the book.'

In the examples in (24), the PSA occurs in the N-position, while the type of the main verb plays no significant role (cf. Thráinsson 2007: 27). From these findings one can conclude that there are five PSA-positions in Icelandic main sentences: the F-position, which is the default PSA-position in Icelandic, the n-position, the ?-position and the N-position. With respect to the n-position it follows this is the position for PSAs in embedded clauses to occur (cf. Tháinsson 2007: 27). This means the PSA-positions described in (21) need to be revised as in (26):

(26) PSA-positions in Icelandic sentences (final version)
a. The F-position in main clauses (12a)
b. The n-position in embedded clauses (21b)
c. The n-position in main clauses with an undergoer in the F-position (21c).
d. the ?-position which is right after the a-position (21d).
e. the N-position in main clauses with a PP or an undergoer in the F-position (24)

2.2 Positions of finite and non-finite verbs in Icelandic

In Icelandic the finite verb always needs to occupy the V2-position. If one uses the adverb *aldrei* 'never' one can see that the finite auxiliary and the non-finite verb with periphrastic tense forms make up a brace construction where the two verbs do not stand adjacent to each other, just as it is the case in German (cf. Thráinsson 2007: 27; Diedrichsen 2008). Within Diderichsen's (1946, 1964) framework the finite auxiliary occupies the v-Position while the non finite verb in a brace construction occupies the V-position. This is shown in example (27):

(27) (Thráinsson 2007: 27)
a. Jón-Ø   hefur   aldrei les-ið   bók-i-na.
    John-NOM   have.3sgPRES   never   read-SUP   book-FsgACC-DET
    'John has never read the book.'
b. Jón-Ø   las   aldrei bók-in-a.
    John-NOM   read.3sgPAST   never   book-FsgACC-DET
    ,John never read the book.'

Typically, the finite main verb precedes the sentence adverbs like *ekki* 'not', *aldrei* 'never' due to the fact Icelandic is a V2-language where the finite verb always needs to be the second constituent in the clause. Icelandic is exceptional in that embedded clauses as well take the finite verb in the second position of the clause. This is only found in Yiddish and to a limited extent in Faroese. All other Germanic languages which are V2-language do not have such a pattern (cf. Tháinsson 2007: 27). Examples for this special Icelandic pattern are given in (28):

(28) (Tháinsson 2007: 28)
a. … hvort Jón-Ø   hef-ði   aldrei   les-ið
    whether   John-NOM   have-3sgPAST.SUB   never   read-SUP
    bók-i-na.
    book-FsgACC-DET

b.   … hvort Jón-Ø   læsi   aldrei   bók-i-na.
             whether   John   read.3sgPAST.SUB   never   book-FsgACC-DET
             '… whether John never read the book.'

As example (29) will show, in 'yes/no'-questions the finite verb can occur in the F-position in Icelandic and in other V2-languages (cf. Thráinsson 2007: 28):

(29) (Thráinsson 2007: 28)
a.   Hefur   Jón-Ø   ekki   les-ið   bók-i-na?
        have.3sgPRES   John-NOM   not   read-SUP   book-FsgACC-DET
        'Has John not read the book?'
b.   Las   Jón-Ø   ekki   bók-i-na?
        read.3sgPAST   John-NOM   not   book-FsgACC-DET
        'Did John not read the book?'

A verb-first or V1-phenomenon can be found in two kinds of sentences in Icelandic: In imperatives and in narrative V1-constructions, which are mainly found in ongoing written narratives (cf. Thráinsson 2007: 28). This is shown in example (30):

(30) (Thráinsson 2007: 29)
a.   Far   Þú!
        go.IMP you
        'Go home!'
b.   Koma   Þeir   nú   að   hell-i   og …
        come.3plPRES   they   now   to   cave-FsgDAT   and
        'Then they get to a cave and …'

As will be shown later, these constructions can be analyzed perfectly within an RRG-framework which proposes an obligatory PrCS in Icelandic.Example (30) will show that sentence adverbs occur within the brace construction where the finite verb is in the v-Position while the non-finite verb is in the V-position. In cases where more than one auxiliary verb occurs, only the first auxiliary will be finite while the sentence adverb precedes the other verbs in the clause. It is not possible for a constituent to intervene between a non-finite auxiliary and a following non-finite verb (cf. Thráinsson 2007: 29). In these cases it is not important if it is an auxiliary or a main verb as will be shown in (31b):

(31) (Thráinsson 2007: 31)
a.   Jón-Ø   mun   aldrei   hafa   les-ið   bók-i-na.
        John-NOM   will.3sgFUT   never   have.INF   read-SUP book-FsgACC-DET
        'John has apparently never read the book.'
b.   *Jón-Ø   mun   hafa   aldrei   les-ið   bók-i-na.
        John-NOM   will.3sgFUT   have.INF   never   read-SUP book-FsgACC-DET
        'John has apparently never read the book.'

From this analysis one can conclude that the finite verb - be it an auxiliary or a main verb - is found in the V2-position and therefore occupies the v-position in Diderichsen's (1945, 1967) framework while the non-finite verb, which for example occurs in periphrastic tense forms, occupies the V-position.

2.3 Alternative positions for undergoers in Icelandic

An undergoer can either occupy the n-Position and thus precede a sentence adverb like *aldrei* 'never' or it can occupy the ?-position and thus follow the sentence adverb. However, this is only true if the main verb is finite and occupies the V2-position and precedes the sentence adverb (cf. Thráinsson 2007: 31). Following Tháinsson (2007: 31) this is known as Holmberg's generalization which was first suggested in Holmberg (1986). An example for Holmberg's generalization is given in example (32):

(33) (Thráinsson 2007: 31)

a. Jón-Ø   hefur   aldrei les-ið   bók-i-na.
    John-NOM   have.3sgPRES   never   read-SUP   book-FsgACC-DET
    'John has never read this book.'

b. *Jón-Ø   hefur   bók-i-na   aldrei   les-ið.
    John-NOM   have.3sgPRES   book-FsgACC-DET   never   read-3sgPSPT

c. Jón-Ø   las   aldrei bók-i-na.
    John-NOM   read.3sgPAST   never   book-FsgACC-DET
    'John never read this book.'

d. Jón-Ø   las   bók-i-na   aldrei.
    John-NOM   read.3sgPAST   book-FsgACC-DET   never
    'John never read this book.'

When the undergoer occupies the n-Position as in (33d) and is therefore in front of the sentence adverb *aldrei* 'never' this is known as Full NP Object Shift in the traditional generative literature, since it affects the full RP and not just pronouns. This is in contrast to a Pronominal Object Shift, which in Icelandic is obligatorily understood in the sense that unstressed pronominal objects cannot follow sentence adverbs (cf. Thráinsson 2007: 31). Examples of pronominal OSs are given in (34):

(34) (Thráinsson 2007: 32)

a. Jón-Ø   hefur   aldrei les-ið hana
    John-NOM   have.3sgPRES   never   read-SUP   3FsgACC

b. *Jón-Ø   hefur   hana   aldrei   les-ið.
    John-NOM   have.3sgPRES   3FsgACC   never   read-SUP

c. *Jón-Ø   las   aldrei hana.
    John-NOM   read.3sgPAST n   ever   3FsgACC

d. Jón-Ø   las   hana   aldrei.
    John-NOM   read.3sgPAST   3FsgACC   never
    'John never read it.'

e. Jón-Ø   las   aldrei HANA
    John-NOM   read.3sgPAST   never   3FsgACC
    'John never read IT (but he may have read something else).'

All the sentences in (34) show that the shifted undergoer is always definite, since indefinite objects or undergoers in RRG-terms do not undergo OS. However, if the main verb is stressed heavily they can undergo an OS. This is also the case with sentence adverbs in such cases (cf. Thráinsson 2007: 32). Examples of this are given in (35):

(35) (Thráinsson 2007: 32)

a. Èg   les   aldrei   bækur.
    1sgNOM   read.1sgPRES never   books.FplACC
    'I never read books.'

b. ?*Èg   les   bækur   aldrei.
    1sgNOM   read.1sgPRES book.FplACC   never

c. Èg   LES   bækur   aldrei.
    1sgNOM   READ.1sgPRES book.FplACC   never
    'I never READ books (I only buy them).'

d. Èg   les   bækur   ALDREI.
    1sgNOM   read.1sgPRES book.FplACC   NEVER
    'I NEVER read books (not only rarely so).'

The reason why the sentences in (35c) and (35d) are acceptable might have something to do with information structure: Undergoers which are indefinite normally are the focus of the sentence. This means they contain new information. OS however is incompatible with focus and cannot refer to new information which is marked as indefinite. If however heavy stress is put on the finite main verb or on the sentence adverb an example of de-foculization is found where the indefinite undergoer becomes easier to interpret as old information. In this context old information is understood as something that has already been mentioned in the discourse

(cf. Thráinsson 2007: 33). OS can also cause differences in the semantic interpretation of sentences. This is shown in example (36):

(36) (Thráinsson 2007: 33)

a.   Èg   las   aldrei   Þrjár   bækur.
     1sgNOM   read.1sgPAST   never   three.FplACC   book.FplACC
     'I never read three books.'

b.   Èg   las   Þrjár   bækur   aldrei.
     1sgNOM   read.1sgPAST   three.FplACC   book.FplACC   never
     'There are three books that I never read.'

The sentence in (36a) is understood as meaning *It was never the case that I read three books* although it is also possible to mean *There are three books that I never read* (Tháinsson 2007: 33). Thráinsson explains the example in (36b) as follows:

> In the second reading the phrase *Þrjár bækur* 'three books' is specific, that is, one could continue by saying something like *namely Moby Dick, Uncle Tom's Cabin and Wuthering Heights'*. In the first reading *Þrjár bækur* 'three books' does no refer to any specific books. (Thráinsson 2007: 33)

In example (36b) the phrase *Þrjár bækur* can only entail a specific reading. This is also indicated by the English glossing. This means that OS seems to be sensitive to specificity and not simply refer to grammatical definiteness. This is indicated by the phrase *Þrjár bækur* 'three books', which is indefinite (cf. Thráinsson 2007: 33).

Following Thráinsson (2007: 33) Holmberg has pointed out that OS cannot affect PPs or objects of prepositions. This is not even the case if the pronoun in question is weakly stressed, as pointed out in Holmberg (1986: 199) and in Thráinsson (2007: 33). Examples for these circumstances are given in (37):

(37) (Thráinsson 2007: 33)

a.   Èg   tala-ði   aldrei   við   Marí-u.
     1sgNOM   speak-1sgPAST   never   to   María-ACC
     'I never spoke to Mary.'

b.   *Èg   tala-ði   við   Marí-u   aldrei.
     1sgNOM   speak-1sgPAST   to   María-ACC   never

c.   *Èg   tala-ði   Marí-u   aldrei   við.
     1sgNOM   speak-1sgPAST   María-ACC   never   to

d.   Èg   tala-ði   aldrei   við   hana.
     1sgNOM   speak-1sgPAST   never   to   3FsgACC
     'I never spoke to her.'

e.   *Èg   tala-ði   við   hana   aldrei.
     1sgNOM   speak-1sgPAST   to   3FsgACC   never

f.   *Èg   tala-ði   hana   aldrei   við.
     1sgNOM   speak-1sgPAST   3FsgACC never   to

OS in Icelandic differs from scrambling, which is found in German and Dutch to some extent. It also differs from topicalization in which constituents of almost any kind can be fronted and therefore occur in the F-position (cf. Thráinsson 2007: 34). I will refer to topicalization in Icelandic in section 2.5.

Negative elements which occur in complement position show a special behavior in that the negative undergoer seems to have undergone OS and occurs in the n-position right after the finite verb (cf. Thráinsson 2007: 35). This is shown in (38):

(38) (Thráinsson 2007: 35)

Èg   hef   enga   bók-Ø   les-ið.
1sgNOM   have.1sgPRES   no   book-FsgACC   read-SUP
'I have not read any book.'

This however would be an exception to Holmberg's Generalization in which he states that an OS can only take place when the main verb is finite. However this is not the case. A closer inspection shows that the 'shift' in (38) is not the same phenomenon (cf. Thráinsson 2007: 35). This is revealed by the fact that a sentence as in (38) is ungrammatical:

(39) (Thráinsson 2007: 35)

*Èg	hef	les-ið	enga	bók-Ø.
1sgNOM	have.1sgPRES	read-SUP	no	book-FsgACC

As is explained in Thráinsson (2007: 36) negative objects of prepositions and whole prepositional phrases which contain a negative RP undergo this process. This is shown in example (40):

(40) (Thráinsson 2007: 36)

a.
*Jón-Ø	hefur	tala-ð		við	engan.
Jón-NOM	have.3sgPRES	speak-SUP		to	nobody

b.
Jón-Ø	hefur	engan	tala-ð	við.
Jón-NOM	have.3sgPRES	nobody	speak-SUP	to

'John has not spoken to anybody.'

c.
*Marí-a	hefur	tala-ð	um	ekkert	annað
María-NOM	have.3sgPRES	speak-SUP	about	nothing	else
í	en	vik-u.			
in	a	week-FsgDAT			

d.
Marí-a	hefur	um	ekkert	annað	tala-ð
María-NOM	have.3sgPRES	about	nothing	else	speak-SUP
í	en	viku.			
in	a	week-FsgDAT			

'Mary has not spoken to anybody in more than one week.'

As Thráinsson (2007: 36) notes this phenomenon is better known in West German, where it is referred to as scrambling, and differs from Scandinavian OS. It can be noted from these findings about undergoers in Icelandic that they can occur in the n-position, the ?-position and in the N-position, although there are some restrictions with respect to these occurrences. As will be shown in section 2.5, undergoers can also occur in the F-position. This will also be relevant for the equation of the PrCS with the F-position in Icelandic.

2.4 Possible positions of adverbs in Icelandic

From the discussion on the possible positions of undergoers it can be seen that sentence adverbs like *aldrei* 'never' and the negation *ekki* 'not´ have a relatively fixed position within the clause which could be used as landmarks in describing the clause structure of Icelandic. Manner adverbs like *vandlega* 'carefully' and frequency adverbs like *oft* 'often' differ from sentence adverbs in that they normally occupy the position after the N-position which does not have a name yet (cf. Thráinsson 2007: 37). This is exemplified in example (40):

 (40) (Thráinsson 2007: 37)

a.
Hún	hafði	les-ið	leiðbeining-ar-nar
3FsgNOM	have.3sgPAST	read-SUP	instruction-FplACC-DET
vandlega /	oft.		
carefully	often		

'She has read the instructions carefully / often.'

b.
*Hún	hafði	les-ið	leiðbeining-ar-nar
3FsgNOM	have.3sgPAST	read-SUP	instruction-FplACC-DET
aldrei / ekki			
never/ not			

As example (40) illustrates, *hún* 'she' occupies the F-position, *hafa* 'have' occupies the v-position, *lesa* 'read' occupies the V-position and *leiðbeiningarnar* 'instructions-the' occupy the N-position. Ostensibly there needs to be a further position within the topological model for Icelandic which is suggested by Thráinsson (2007: 19) and also introduced in section 1. Given the data from example (40a) I tend to introduce a further position to the topological model suggested by Tháinsson (2007: 19): The A-position which follows the N-position in Thráinsson's framework. This position is occupied by manner adverbs and frequency adverbs.

It is however also the case that adverbs like *oft* 'often' can occupy the a-position. This is exemplified in (41):

(41) (Tháinsson 2007: 37)

Hún	hafði	oft	les-ið	leiðbeining-ar-nar.
3FsgNOM	have.3sgPAST	often	read-SUP	instructions-FsgACC-DET

'She had often read the instructions.'

With respect to the adverb *oft* 'often' Thráinsson (2007: 37) notes the following regarding the meaning of this adverb:

> Note however, that the adverb *oft* does no have exactly the same meaning in the medial and the final position. In the medial position it has scope over the whole sentence (= 'It has often been the case that …') whereas in the final position it modifies the verbal action, having roughly the meaning 'over and over.' (Thráinsson 2007: 37)

This means that the position of an adverb can play a semantic role (cf. Tháinsson 2007: 37). In RRG this semantic role is realized by the fact that the adverb which is a peripheral element modifies different layers of the LSC. So as peripheral element it can either modify the nucleus, core of the clause as a whole (cf. Van Valin 2005: 20ff).

This means the position of an adverb can play a semantic role (cf. Tháinsson 2007: 37). In RRG this semantic role is realized by the fact that the adverb, which is a peripheral element, modifies different layers of the LSC. As peripheral element it can either modify the nucleus, core of the clause as a whole (cf. Van Valin 2005: 20ff).

(42) (Tháinsson 2007: 37)

*Jón-Ø	hefur	vandlega	les-ið
Jón-NOM	have.3sgPRES	carefully	read-SUP
leiðbeining-ar-nar.			
instructions-FsgACC-DET			

In the context of the semantic classification of adverbs in Icelandic Thráinsson (2007: 37f) notes the following:

> It is well known, of course, that different semantic classes of adverbs have different 'privileges of occurrence' (see e.g. Jackendoff 1972; Travis 1988 – and more recently Alexiadou 1997; Cinque 1999 among others). The syntax of Icelandic adverbs has not been investigated in great detail, but various preliminary studies and analysis of particular classes exist (see Sveinn Bergveinsson 1969; Jóhannes Gísli Jónsson 2002; Kristin M. Jóhannsdóttir 2005; Höskukdur Tháinsson 2005: 123 – 37). Thus Jóhannes Gísli Jónsson (2002) considers the following sub-classes of S-adverbs (as he calls them) in Icelandic: **speech act adverbs** (*einfaldlega* 'simply'), **evaluative adverbs** (*skilkanlega* 'understandably), **evidential adverbs** (*greinilega* 'clearly'), **modal adverbs** (*liklega* 'probably') and **conjunctive adverbs** (*samt* 'still'). This is mainly a semantic classification and the semantics of adverbs of this type (and others) is discussed by Ernst (2002), for instance. Kristin M. Jóhannsdóttir's paper (2005) presents a semantic analysis and sub-classification of temporal adverbs, showing, for instance, how they interact with different forms of the progressive construction. (Thráinsson 2007: 38f).

Thráinsson (2007: 38) suggests a classification of adverbs consisting of five subclasses, which are given in (43):

(43) (cf. Tháinsson 2007: 38)
a.   Sentence adverbs: These class of adverbs typically occur in the a-position. For these adverbs it is also possible to be preposed: *aldrei* 'never', *augljóslega* 'obviously', *ekki* 'not', *greinilega* 'obvisiously', *sennilega* 'probably', *sýnilega* 'evidently', *trúlega* 'probably'.
b.   Manner adverbs: These adverbs occur in the A-position before place and time adverbs. Manner adverbs cannot easily be preposed. These adverbs are: *hratt* 'fast', *klaufalega* 'clumsily', *kæeuleysislega* 'carelessly', *nákvæmlega* 'accurately', *vandlega* 'carefully'.
c.   Place and time adverbs: These adverbs occur in the A-position just like manner adverbs and typically they are placed behind these class of adverbs. As sentence adverbs they can be preposed easily: *hér* 'here', *hérna* 'here', *inni* 'inside', *í fyrra* 'last year', *í gær* 'yesterday', *nú* 'now', *núna* 'now', *úti* 'outside', *Þar* 'there', *Þarna* 'there', *Þa* 'then'.
d.   The fourth subclass is formed by adverbs which can intervene between the PSA and the finite verb in sentences where the PSA occurs in the F-position. Sometimes these adverbs are also called V3-adverbs. Naturally they fit into the a-position but they can also occur in the A-position. Only some of these V3-adverbs can be preposed: *auðtiað* 'naturally, obviously', *bara* 'just', *einfaldlega* 'simply', *ennÞa* 'still', *kannski* 'maybe' *liklega* 'probably', *vonandi* 'hopefully'.
e.   Discourse particles which are also called modal particles typically occur in the a-position. Discourse particles cannot be preposed. Also they are difficult to translate into other languages. These particles are: *jú, nú* and *sko*.

From this discussion it becomes clear that adverbs in Icelandic typically occur either in the a-position or in the A-position which does not occur in Tháinsson's (2007) adaptation of Diderichsen's (1947, 1964) topological model.

2.5 Topicalization in Icelandic

As shown in the previous paragraphs, clause structure in Icelandic is not as free as its rich morphology might suggest (cf. Thráinsson 2007: 341). In simple main declarative sentences the verb in the V2-position, or in Diderichsen's (1947, 1964) framework the v-position, is a landmark which is fixed and always needs to be occupied.

In (21) I have shown that in Icelandic the F-position can either be occupied by the PSA as in (21a) or by the undergoer as in (21c). This effect is known as topicalization in Icelandic and is a V2-phenomenon also found in German (cf. Diedrichsen 2008). Based on this observation, Diedrichsen concludes that the so-called Vorfeld, which is identical with the F-position in Diderichsen's (1947, 1964) framework, can be equaled to the PrCS in RRG (cf. Diedrichsen 2008). In what follows I will show that the F-position in Icelandic can be equaled with the PrCS, too. Following Thráinsson (2007: 342) the order of sentences like (20c) can be described by explaining that the undergoer can be preposed to the F-position, but due to the V2-phenomenon in Icelandic it needs to be immediately followed by the finite verb (cf. Thráinsson 2007: 342). In topicalization as described in (20c) also some restrictions can be found. These restrictions are shown in (444):

(44) (Thráinsson 2007: 342)
a.   Lögregl-a-n   fann   Þjóf-Ø   í húsin-u.
       police-FsgNOM-DET   find.3sgPAST   thief-MsgACC   in building-FsgDAT
       'The police found the thief in the building.'
b.   ?*Þjóf-Ø   fann   lögreglan   í húsinu.
       thief-MsgACC   find.3sgPAST   police-FsgNOM-DET   in building-FsgDAT
c.   Þjóf-Ø-inn   fann   lögregl-a-n   í húsin-u.
       thief-MsgACC-DET   find.3sgPAST   police-FsgNOM-DET   in building-FsgDAT
       'The thief the police found in the building.'

In example (44a) the sentence is in its usual SVO order. Example (44b) sounds odd however. This is due to the fact that the RP in the F-position is indefinite. As Thráinsson (2007: 342) notes, the fronted constituent needs to be definite since topicalized RPs are usually the topic or the theme of the discussion and topicalization of a RP 'out of the blue' is odd. A grammatical example of topicalization is found in (44c) where the RP in the F-position is definite (cf. Thráinsson 2007: 342). It is also possible to front more than just undergoers in Icelandic. Other types of constituents can also be fronted. This is possible for PPs and adverbials (cf. Thráinsson 2007: 343). This is exemplified in (45):

(45) (Thráinsson 2007: 343)

a.   Harald-ur   hefur   ekki   búið   á Akureyri.
     Haraldur-MsgNOM   have.3sgPRES   not   live.SUP   in Akureyri
     'Haraldur has not lived un Akureyri.'
b.   À Akureyri   hefur   Harald-ur   ekki   búið.
     in Akureyri   have.3sgPRES   Haraldur-MsgNOM   not   live.SUP
     'In Akureyri Haraldur has not lived.'
c.   Ekki   hefur   Harald-ur   búið   á Akureyri.
     not   have.3sgPRES   Haraldur-MsgNOM   live.SUP   in Akureyri

In (45b) the PP occurs in the F-position and precedes the finite verb in the V2-position. This example could have a foregrounding or even contrastive role as in *Haraldur has not lived in Akureyei, but he has lived in Reykjavik*. The fronting of the negation in (45c) on the other hand has a stylistic value. In this case a natural interpretation of the sentence could be as follows: *It doesn't seem that Harold has lived in Akureyri!* However this interpretation depends on the right intonation since it could also mean *I cannot believe that Harold has lived in Ajureyri!* (cf. Thráinsson 2007: 343). Nevertheless there is a restriction on the topicalization of V3-adverbs which are adverbs which can occupy the a-position, modal particles and particles which accompany particle verbs. These constituents cannot occupy the F-position (cf. Thráinsson 2007: 343):

(46) (Thráinnson 2007: 343)

a.   Harald-ur   bara   býr   á Akureyri.
     Haraldur-MsgNOM   just   live.3sgPRES   in Akureyri
     'Harold just lives in Akureyri.'
b.   *Bara   býr   Harald-ur   á Akureyri.
      just   live.3sgPRES   Haroldur-MsgNOM   in Akureyri
c.   Harald-ur   býr   sko   á Akureyri.
     Haroldur-MsgNOM   live.3sgPRES   mod.prt. in Akureyri
d.   *Sko   býr   Harald-ur   á Akureyri.
      mod.prt. live.3sgPRES   Haraldur-MsgNOM   in Akureyri
e.   Strák-ar-nir   hafa   tekið   bæk-ur-nar   upp.
     boys-MplACC-DET   have.3plPRES   taken.SUP   book.FplACC-DET up
     'The boys have unpacked the books.'
f.   *Upp   hafa   strák-ar-nir   tekið   bæk-ur-nar.
       up   have.3plPRES   boy.MplNOM-DET   take.SUP   book.FplACC-DET

As can be seen in (46b) it is not possible for V3-adverbs to occupy the F-position. The same restriction in occupying the F-position is true for modal particles which cannot be frontend. This is shown in (46d). Also verbal particles cannot occur in the F-position as shown in (46f) (cf. Thráinsson 2007: 344). The question if the restriction of fronting V3-adverbs is due to lexical restrictions or to other reasons is subject to further examination.

Thráinsson (2007: 344) notes that in certain contexts it is possible for the predicate adjectives and secondary predicates to occupy the F-position. However non-finite forms of main verbs which follow modal auxiliary, a perfective auxiliary or a passive auxiliary cannot occupy the F-position (cf. Thráinnson 2007: 344). This is shown in (47):

(47) (Thráinsson 2007: 345)

a.   Harald-ur   var   fljótur   að   flytja
      Haraldur-NOM   be.3sgPAST   quick   to   move.INF
      til Reykjavik-ur.
      to Reykjavik-MsgDAT

a'.   Fljótur   var   Harald-ur   að   flytja   til
      quick   be.3sgPAST   Haroldur-NOM   to   move.INF   to
      Reykjavik-ur!
      Reykjavik-MsgDAT

b.   Hann   mála-ði   bíl-Ø-inn   rauðan.
      3MsgNOM   paint-3sgPAST   car-MsgACC-DET   red

b'.   ?Rauðan   mála-ði   hann   bíl-Ø-inn.
      red   paint-3sgPAST   3MsgNOM   car-MsgACC-DET

c.   Strák-ar-nir   munu   lesa   bæk-ur-nar
      boy-MplNOM   be.3plPRES   read.INF   book.FplACC.DET

c'.   ?*Lesa   munu   strák-ar-nir   bæk-ur-nar.
      read.INF   be.3plPRES   boys-MplNOM-DET   book.FplACC.DET

d.   Strák-ar-nir   hafa   les-ið   bæk-ur-nar.
      boy-MplNOM-DET   have.3plPRES   read-SUP   book.FplACC.DET

d'.   ?*Lesið   hafa   strák-ar-nir   bæk-ur-nar.
      read.SUP have3.plPRES   boy-MplNOM-DET   book.FplACC.DET

e.   Bæk-ur-nar   voru   lesnar   upp til agna.
      book-FplACC-DET   be.3plPAST   read.PASTPART up   to pieces
      'The books were read to shreads.'

e'.   ?*Lesnar   voru   bæk-ur-nar   upp til agna.
      read.PASTPART be.3plPAST   book.FplACC-DET   up to pieces

Putting the predicative adjective in the F-position as in (47a') has a special stylistic value. This is indicated by the exclamation mark. However, if the secondary predicate occupies the F-position the sentence becomes odd since it is difficult to imagine a proper context for the fronting. As can be seen in (47c') it is impossible for the infinitive to occupy the F-position. The same is true for verbs in the supine as in (47d') and past participles as in (47e') (cf. Thráinsson 2007: 345)

In Icelandic, certain variants of topicalization can be found which are not found in other languages. For example RPs can sometimes be fronted out of certain types of PPs. This is called preposition stranding. Also instances of pied piping where the preposition together with the RP occupies another position in the clause occur. In addition, Wh-words occupy the F-position in question formation in Icelandic (cf. Thráinsson 2007: 345). Examples of these variants of topicalization are given in (48):

(48) (Thráinsson 2007: 345)

a.   Èg   hef   aldrei   tala-ð   við   Sigrún-u.
      1sg   have.1sgPRES   never   speak-SUP   to   Sigrun-FsgACC
      'I have never spoken to Sigrun.'

b.   Sigrún-u   hef   ég   aldrei   tala-ð   við.
      Sigrun-FsgACC   have.1sgPRES   1sg   never   speak-SUP   to.

c.   Við   Sigrún-u   hef   ég   aldrei   tala-ð.
      to   Sigrun-FsgACC   have.1sgPRES   1sg   never   speak-SUP

As can be seen in (48b) it is possible for the PP to be splited with the preposition stranded. In this case the undergoer occupies the F-position and the preposition is stranded in the N-position. It is also possible for the whole PP to occupy the F-position as shown in (48c).

However there are also instances where preposition stranding is disallowed, as will be shown in (49) (cf. Thráinsson 2007: 345):

(50) (Thráinsson 2007: 345)

a. Èg   hef   aldrei   búið   á Akureyri.
    1sg   have.1sgPRES never   live.SUP in Akureyri
    'I have never lived in Akureyri.'

b. ?*Akureyri   hef   ég   aldrei   búið   á.
    Akureyri   have.1sgPRES 1sg   never   live.SUP in

c. À Akureyri   hef   ég   aldrei   búid.
    in Akureyri   have.1sgPRES 1sg   never   live.SUP

    d. Jón-Ø   send-i   bréf-Ø-ið   til Harald-ar.
        Jón-MsgNOM   send-3sgPAST   letter-NsgACC-DET to Haraldur-GEN

e. ?*Harald-ar/   ?*Hvers send-i   Jón-Ø   bréf-Ø-ið   til.
    *Harald-GEN   *who   send-3sgPAST   Jón-NOM   letter-NsgACC-DET   to

f. Til Harald-ar/   Til hvers send-i   Jón-Ø   bréf-Ø-ið.
    to Haraldur-GEN   to whom send-3sgPAST John-MsgNOM   letter-NsgACC-DET

As is exemplified in (49b) and (49e), in these instances it is not possible for these prepositions to be stranded in the N-position. Nevertheless I do not want to go into the details of preposition stranding. I will introduce some examples of degree adverbs which can occupy the F-position out of an adjectival phrase in (51).

(51) (Thráinsson 2007: 347)

a. Hann   hleypur   svakalega   hratt.
    3MsgNOM   run.3sgPRES   terribly   fast
    'He runs terribly fast.'

b. Svakalega   hleypur   hann   hratt.
    terribly   run.3sgPRES   3MsgNOM   fast

c. ?*svakalega   hratt   hleypur   hann!
    terribly   fast   run.3sgPRES   3MsgNOM

d. Marí-a   er   ofsalega góður   kennari-Ø.
    María-NOM   be.3sgPRES   extremely good   teacher-ACC

e. Ofsalega   er   Marí-a   góður   kennari-Ø.
    extremely   be.3sgPRES   María-NOM   good   teacher-ACC

f. *Ofsalega   góður   er   Marí-a   kennari-Ø.
    extremely   good   be.3sgPRES   María-NOM   teacher-ACC

g. ??Ofsalega   góður   kennari-Ø   er   Marí-a.
    extremely   good   teacher -ACC be.3sgPRES   María-NOM

The findings in (51c, f, g) suggest that it is only possible for one single degree adverb to occupy the F-position. As (51g) shows it is not even possible for a RP with two adverbials, which form the periphery in RRG-terms, to occupy the F-position. However, as Thráinsson (2007: 348) notes this kind of fronting seems to be restricted to a small set of adverbs. This is shown in (52). As noted by Thráinsson (2007: 348f), in literary style one can also find examples of 'constituent splitting'. This will be shown in (53b) and (53c).

(52) (Thráinsson 2007: 348)

a. Marí-a   er   mjög   góður   kennari-Ø.
    María-NOM   be.3sgPRES   very   good   teacher-ACC
    'Mary is a very good teacher.'

b. *Mjög   er   Marí-a   góður   kennari-Ø
    very   be.3sgPRES   María-NOM   good   teacher-ACC

(53) (Thráinsson 2007: 349)

a. Hann   var   góður   smið-ur.
    3MsgNOM   be.3sgPAST   good   carpenter-ACC
    'He was a good carpenter.'

b. Smið-ur   var   hann   góður.
    carpenter-ACC   be.3sgPAST   3MsgNOM   good

c. *Góður var   hann   smið-ur.
    good   be.3sgPAST   3MsgNOM   carpenter-ACC

As can be seen in (53b) it is possible for an RP to be split if the undergoer occupies the F-position. However it is not possible for the adjective to occupy the F-position with the undergoer left in the N-position. This is shown in (53c). Fronting of the Nucleus together with the undergoer is also not possible in Icelandic. In the traditional generative literature this is called VP fronting. As example (54c) and (54d) will show this is not possible in Icelandic (cf. Thráinsson 2007: 349):

(54) (cf. Thráinsson 2007: 349)
a.   Hún   hefur   keypt   bæk-ur.
        3FsgNOM   have.3sgPRES   buy.SUP   book.FplACC
        'She has bought books.'
b.   *Keypt   bæk-ur   hefur   hún
        buy.3sgPERF   book.FplACC   have.SUP   3FsgNOM
c.   Hún   mun   lesa   allar   bæk-ur-nar.
        3FsgNOM   will.3sgFUT   read.INF   all   books.FplACC-DET
d.   *Lesa   allar   bæk-ur-nar   mun   hún
        read.INF   all   books-FplACC-DET   will.3sgFUT   3FsgNOM

While this kind of fronting, which is called VP-fronting in the traditional generative literature, is not possible in Icelandic, fronting of the Nucleus is possible (cf. Thráinsson 2007: 349). This is shown in (55):

(55) (cf. Tháinsson 2007: 345)
a.   Þeir   gengu   inn   og   heilsaðu
        3plNOM   walk.3plPRES   in   and   greet.3plPAST
        'They entered and greeted.'
b.   Gengu   Þeir   inn   og   heilsuðu
        walk.3plPRES   3plNOM   in   and   greet.3plPAST

Based on these findings the following constituents can occupy the F-position in main declarative sentences in Icelandic:

(56) Possible elements in the F-position
    a. PSAs
    b. Undergoers
    c. PPs
    d. Predicative adjectives
    e. Degree adverbs
    f. Nucleus

Besides these elements it is also possible for undergoers which are part of a PP to occur in the F-position. This is the case with preposition stranding. Since in Icelandic examples of 'constituent splitting' are found it is also possible for bare undergoers to occur in the F-position, with the corresponding adjective occupying the N-position. In section 2.2 it was also explained that in yes/no-questions and in narrative V1-constructions the finite verb can occupy the F-position.

In this section I have shown that the finite verb always needs to occupy the second position in the clause and that a topicalization pattern as in English is not possible in Icelandic because it is a V2-language. Due to the V2-phenomenon in Icelandic it is not possible to propose a PrCS as in English clause structure. The PrCS in Icelandic rather should be equaled with the F-position in Icelandic as it is done with the Vorfeld in German (cf. Diedrichsen 2008: 206). As for German, this means that Icelandic has an obligatory PrCS (cf. Diedrichsen 2008). To support this idea I will present a semantic argumentation for an obligatory PrCS in the next section.

3.0 Modal verbs in Icelandic and Diedrichsen's (2008) approach

To support her account of an obligatory PrCS in German, Diedrichsen (2008) uses a semantic test showing that the Vorfeld in German has a special status. As said in section 0, Diedrichsen bases her observation of an obligatory PrCS in German on the fact that some German modal verbs exhibit an ambiguity between an epistemic and a deontic reading which remains an obligatory PrCS as highly reasonable. In what follows I will first describe the semantic, syntactic and morphological properties of Icelandic modal verbs. I will then summarize Diedrichsen's (2008) test and adopt it for Icelandic.

In Icelandic the operators modality and status, which represent epistemic and deontic modality, are realized with the use of modal verbs. The morphological, syntactic and semantic properties of modal verbs in Icelandic are summarized in (57):

(57)   (cf. Tháinsson and Vikner 1995: 53)

1. Modal verbs in Icelandic show subject-verb agreement.
   a. Èg   mun /   Þú   munt /   við   munum
       1sgNOM / will.1sgFUT 2sgNOM will.2sgFUT / 3plNOM will   will.3plFUT
       koma
       come.INF
2. In Icelandic there is no general ban on modals following auxiliary verbs in Scandinavian, including other modal verbs.
   b. Mig hefur   vilja-ð   vanta   pening-ar.
       1sgACC   have.3sgPRES   will-SUP   lack   money-MplNOM
       'I have tended to lack money.'
3. Some of the Icelandic modal verbs take bare infinitival complements while others do not.
   c. Èg   vil   (*að)   fara   heim.
       1sgNOM   want.1sgPRES   to   go.INF   home
       'I want to go home.'
4. In Icelandic modal verbs express a modal meaning which is typically of two kinds: Epistemic and root. The epistemic sense qualifies the truth value of the sentence containing the modal while the root sense expresses necessity, obligation permission, volition, or ability of an agent which usually, but not necessarily is expressed by the subject of the sentence.

Some of the modal verbs in Icelandic are ambiguous between an epistemic and a root meaning, which has serious syntactic consequences within an RRG-framework.

The most important subclasses of epistemic and root modals in Icelandic are shown in the diagram in (57) adopted from Thráinsson and Vikner (1995: 55):
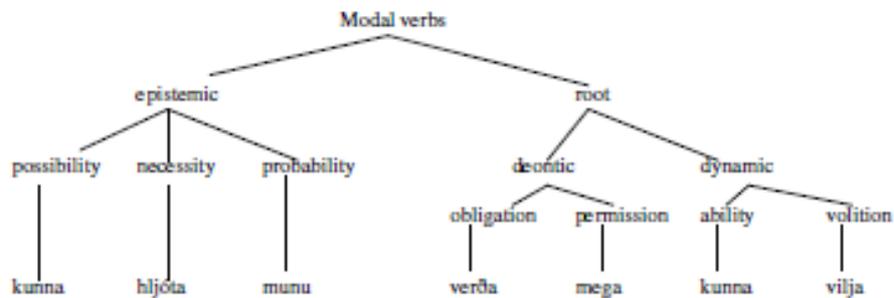

Figure 5. Classification of Icelandic modal verbs (Thráinsson and Vikner 1995: 55)

Some of the modal verbs in figure XX are ambiguous in that they can either have an epistemic or a root meaning. These modals are given in (58).

(58)   verða 'must', hljóta 'must', geta 'can', kunna 'can', vilja 'will'

Examples of double modals are found in Icelandic as well (cf. Tháinsson and Vikner 1995). It is possible to embed root modals under root modals and epistemic modals under epistemic modals but what is of most interest with respect to this analysis is that it is only possible to embed root modals under epistemic modals but not vice versa. This is shown in (59)

(59)

a.   Þau   munu   vilj-a   byggja hús-Ø.
        3plNOM   be.3plFUT   want-3plPRES   build.3plPRES   house-NsgACC
        'They are said to want to built a house.'

b.   Hann   kann   að   verða   að   selja   hús-Ø-ið
        3MsgNOM   can.3sgPRES   to   must.INF to   sell.INF house-NsgACC-DET
        'It is possible that he will have to sell the house.'

c.   *Hann verður   að   kunna   að   kunna   að synda
        3Msg   must.3sgPRES   to   can.INF to   can.INF to swim.INF
        Intended meaning: 'He has to may be able to swim.'

d.   *Èg   verð   að   vilja   reka   á land-Ø.
         1sgNOM   must.1sgPRES   to   will.INF drift.NF to land-NsgACC
         Intended meaning: 'I have to tend to drift ashore.'

As predicted by Van Valin (2005: 11) it is possible to embed root modals under epistemic modals as in (59a, b), where the root modal is closer to the verb than the epistemic modal. This is due to the fact that the epistemic modal is a clausal operator and the root modal is a core operator. However, as shown in (59c, d) it is not possible for the epistemic modal to be embedded under the root modal. This would contradict the idea that clausal operators need to be further away from the verb than core operators (cf. Van Valin 2005: 12).

These findings are presented as evidence for the following. Deontic modal verbs express modality. This is an operator of the core layer. Epistemic modal verbs on the other hand express status, which is an operator of the clausal layer. A consequence is that modal verbs occur within the scope of epistemic ones (cf. Diedrichsen 2008: 207; Foley and Van Valin 1984: 231; Van Valin and LaPolla 1997: 40ff).

Example 58 shows an Icelandic sentence with a modal verb which shows an ambiguity between a root and an epistemic reading:

(60)   Marí-a   hefur   geta-ð   les-ið   bók-i-na.
          María-NOM   have.3sgPRES can-SUP   read-SUP   book-FsgACC-DET
          'Mary could have read the books.'

Based on Diedrichsen (2008: 207) the sentences in (60) can be paraphrased as given in (61) below:
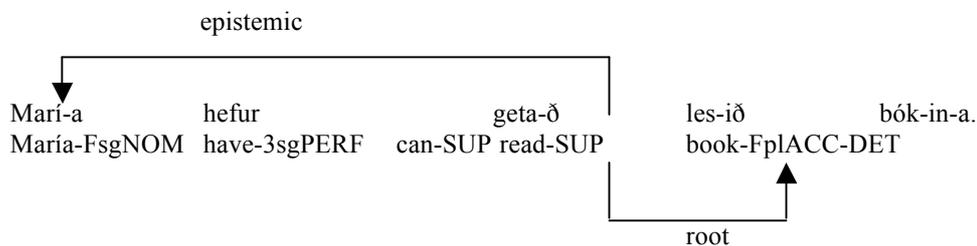
(61) (cf. Diedrichsen 2008: 207)
a.   María has the obligation to read the book.
b.   There is some obligation or strong reason to assume that María has read the book.

As described in Van Valin and LaPolla (1997), the paraphrase in (61a) illustrates that deontic modal verbs predicate a relation between the actor and the action, or the idea of the action. Such modal verbs are core operators. The epistemic readings of modal verbs are a predication along the realis / irrealis dimension made of the entire reported event involving the act itself and its participants (cf. Diedrichsen 2008: 207). Diedrichsen explains:

> Modal verbs with an epistemic reading have the whole proposition in their scope. Status, which involves the realis/irrealis dimension, is a clausal operator, and thus it modifies the clause as a whole (cf. Van Valin & LaPolla 1997: 48; Diewald 1999 observes the same for German). (Diedrichsen 2008: 207)

In this connection based on Diedrichsen (2008: 208) one might ask the question if the F-position in Icelandic could be represented in the PrCS in RRG-terms. For German, Diedrichsen shows there is a semantic decomposition of this particular position with respect to the deontic vs. epistemic reading of modal verbs. She explains that only the epistemic reading can effect the core-external position, because it is a clausal operator. She says there should be a way to determine the PrCS vs. operator-position of the F-position or the Vorfeld-position in German by testing deontic and epistemic readings of modal verbs in different sentence types (cf Diedrichsen 2008: 208). Diedrichsen has shown this for German. I will show the same test is applicable for Icelandic. She points out that with a deontic reading, the modal verb points to the right and modifies the action that is stated in the non-finite verb. With an epistemic meaning the modal verb rather points to the left, where the Vorfeld-element is located. In this case it is said that something has to be true about the Vorfeld-element, which means that it expresses the obligation (or at least a strong reason) for the speaker to believe that something is true with respect to the Vorfeld-element (cf. Diedrichsen 2008: 208). This is illustrated in (60) for Icelandic:

(62)   (Diedrichsen 2008: 208):

epistemic

Marí-a	hefur	geta-ð	les-ið	bók-in-a.
María-FsgNOM	have-3sgPERF	can-SUP read-SUP	book-FplACC-DET	

root

The scope of *geta* 'could' can be better understood by using the following paraphrases, which are adopted form Diedrichsen (2008: 208) and involve a semantic decomposition of the root and epistemic readings with respect to *geta*.

(63) (cf. Diedrichsen 2008: 208)
a. For María it is true: She has the obligation to read the book.
b. For María it is true = has to be the case: He read the book.

In both the deontic and epistemic reading the topic of the sentence is *María* as in (62). This means that both readings are understood as statements about *Mary*. Both readings show the relationship between the finite modal verb *geta* 'must' in (62). The topic changes with the two readings. Consequently, in the deontic reading *geta* 'must' is included in the statement about *María* while in the epistemic reading it gives a comment on the statement with respect to *María*, saying that this whole statement follows from external reasons that oblique the speaker to assume this statement can be made about the two participants. This means that in the epistemic reading, the obligation is on the speaker and not on *María*. In this case it is found on another level, which could be described as extra-core level (cf. Diedrichsen 2008: 208f). Following Diedrichsen this is not surprising, since status modifiers have been described as clausal operators (cf. Diedrichsen 2008: 209).

Diedrichsen (2008: 209) has developed a test for German which can be used to determine if the difference between the two readings of modal verbs in German depends on the position of the modal verb with respect to the Vorfeld-element respectively the element in the F-position. This test can easily be adopted for Icelandic as the following examples show:

(64)
À morgun	hlýt	ég	að	hafa
tomorrow	must.3sgPRES	1sgNOM	to	have.INF
farið	bíl-Ø-inn.			
drive.SUP	car.MsgACC-DET			

'Tomorrow, I must have driven the car.'

a. deontic reading
For tomorrow is true: I have to have driven the car.
b. epistemic reading
*For tomorrow is true = has to be the case: I have driven the car
(cf. Diedrichsen 2008: 209)

In (64) the epistemic reading is excluded. The semantic decompositions show why this is the case: For speakers it is not possible to make an assumption about the truth of something which has not taken place yet, and which might happen in the future. However, the deontic reading is acceptable since it is possible that a speaker knows about something that he or someone else has to do in the future (cf. Diedrichsen 2008: 209).

(65)

Í gær,	hlýt	ég	að	hafa	far-ið	bíl-Ø-inn
yesterday	must-3sgPRES	1sg	to	have.INF	drive-SUP	car.MsgACC-DET

'Yesterday, I must have driven the car.'
a. deontic reading
*For yesterday is true: I have to have driven the car.
b. epistemic reading
For yesterday is true = has to be the case: I have driven the car

In (65) the epistemic reading is possible while the deontic reading is excluded. This is because it is not possible to talk about the obligation somebody had in the past. This means that deontic obligation necessarily refers to the future, while epistemic necessity can only refer to the past (cf. Diedrichsen 2008: 209).

As can be seen in the examples in (64) and (65), the semantic decomposition always involves the element in the F-Position in Icelandic. This is shown in the examples in (66):

(66)

bíl-Ø-inn	hlýt	ég	að	hafa	far-ið.
car.MsgACC	must.1sgPRES	1sg	to	have.INF	drive-SUP

'The car, I must drive.'
a. deontic reading
For the car is true: I have to drive it.
b. epistemic reading
For the car is true = has to be the case: I have driven it.
(cf. Diedrichsen 2008: 209f)

These tests show that the difference between the two readings depends on the position of the element in the F-position, as shown in the semantic decompositions. In general, Diedrichsen resumes that the Vorfeld-position in clauses which have one would have to be regarded as being core-external. It should therefore be equated with the RRG-concept of the PrCS (cf. Diedrichsen 2008: 210). For Icelandic this means it is reasonable to assume an obligatory PrCS, since the element in the F-Position is regarded as core-external, too.

In the next section I will analyze a sample of simple Icelandic sentences with an obligatory PrCS and theory internal reasons for this assumption are given.

4.0 RRG-analysis if Icelandic simple main declarative sentences with an obligatory PrCS

In the previous sections I have presented arguments which reveal the assumption of an obligatory PrCS in Icelandic to be reasonable. In section 2 I have analyzed clause structure in simple main declarative sentences in Icelandic based on the topological modal developed in Diderichsen (1947, 1964) and shown that due to the V2-phenomenon in Icelandic topicalization in Icelandic has a rather different pattern than English, which the notion of the

PrCS was originally developed for. The fact that in a V2-language like Icelandic and German, as shown in Diedrichsen (2008), suggests that at least in cases of topicalization the F-position in Icelandic is equal to the PrCS. However, the semantic tests in section 3 show that the F-position in Icelandic (just as the Vorfeld in German (cf. Diedrichsen 2008)) seems to be pragmatically motivated since - as the tests in (62) and (63) show - the F-position has a special status in Icelandic. All these findings suggest one can assume an obligatory PrCS in Icelandic, just as Diedrichsen suggested an obligatory PrCS in German (cf. Diedrichsen 2008).

Based on the findings of section 2 and 3 and on Van Valin (1991) I will develop a semantics-to-syntax and linking algorithm for Icelandic in which an obligatory PrCS is assumed. As explained in Van Valin (2005: 13), in RRG syntactic representations are not specified by phrase structure rules, but rather the different patterns are stored as 'syntactic templates' in the syntactic inventory which is closely linked to the lexicon. The syntactic inventory of a language is not universal but language-specific, while the LSC as a whole is universal. In what follows I will in extracts develop a syntactic inventory of simple main declarative sentences in Icelandic based on Van Valin and Diedrichsen (2006), before I will be able to develop the semantics to syntax linking algorithm for Icelandic. In figure 1, templates of simple Icelandic main declarative sentences are given. Figure 5 gives an overview of an excerpt of some Icelandic syntactic templates. Within the linking algorithm the appropriate syntactic templates are chosen and the LSC of the sentence in question is constructed (cf. Van Valin 2005; Van Valin and Diedrichsen 2006). In (64) I will give the core template selection principle for Icelandic, which consists of universal selection principles and of language specific selection principles based on Van Valin (1991):

(67) Core syntactic template selection principles (active voice) (cf. Van Valin and Diedrichsen 2006: 5)
    a. Core syntactic template selection principle for active voice sentences:
        The number of syntactic slots for arguments within the core is equal to the number of distinct specified argument positions in the semantic representation of the core.
    b. Language specific qualifications of the principle in (a):
        1. All cores in the active voice have a minimum syntactic valence of 1.
        2. The occurrence of a syntactic argument in the pre/postcore slot reduces the number of core slots by 1 [may override (1) above]

The core syntactic template selection principles in (64) refer to active voice sentences. (64a) assumes that the syntactic slots for arguments within the core need to be equal to the number of argument positions in the LS. This principle is universal, while the qualifications in (64b) are specific for Icelandic. In (65) I will give the case marking rules for Icelandic based on Van Valin (1991):

(68) Case marking rules for Icelandic (Van Valin 1991: 171)
    a. The highest ranking macrorole takes nominative case.
    b. The other macrorole argument takes accusative case.
    c. Non-macrorole arguments take dative as their default case.

SENTENCE

CLAUSE

PrCS

XP

CORE

CORE

Clause / sentence template
with precore slot

Core template with
one slot

Core template with two slots

CORE

AUX

NUCLEUS

PRED

NUCLEUS

PRED

Core template with three slots   Nucleus template   Branching nucleus template

RP

N_{PROP}

Proper noun RP

RP

N_{PRO}
Modality

Status

Tense

RP

$CORE_N$

NUC_N

N

NUCLEUS

CORE

CLAUSE

CLAUSE

SENTENCE   IF

Pronominal RP   Common noun RP   Main clause operator projection

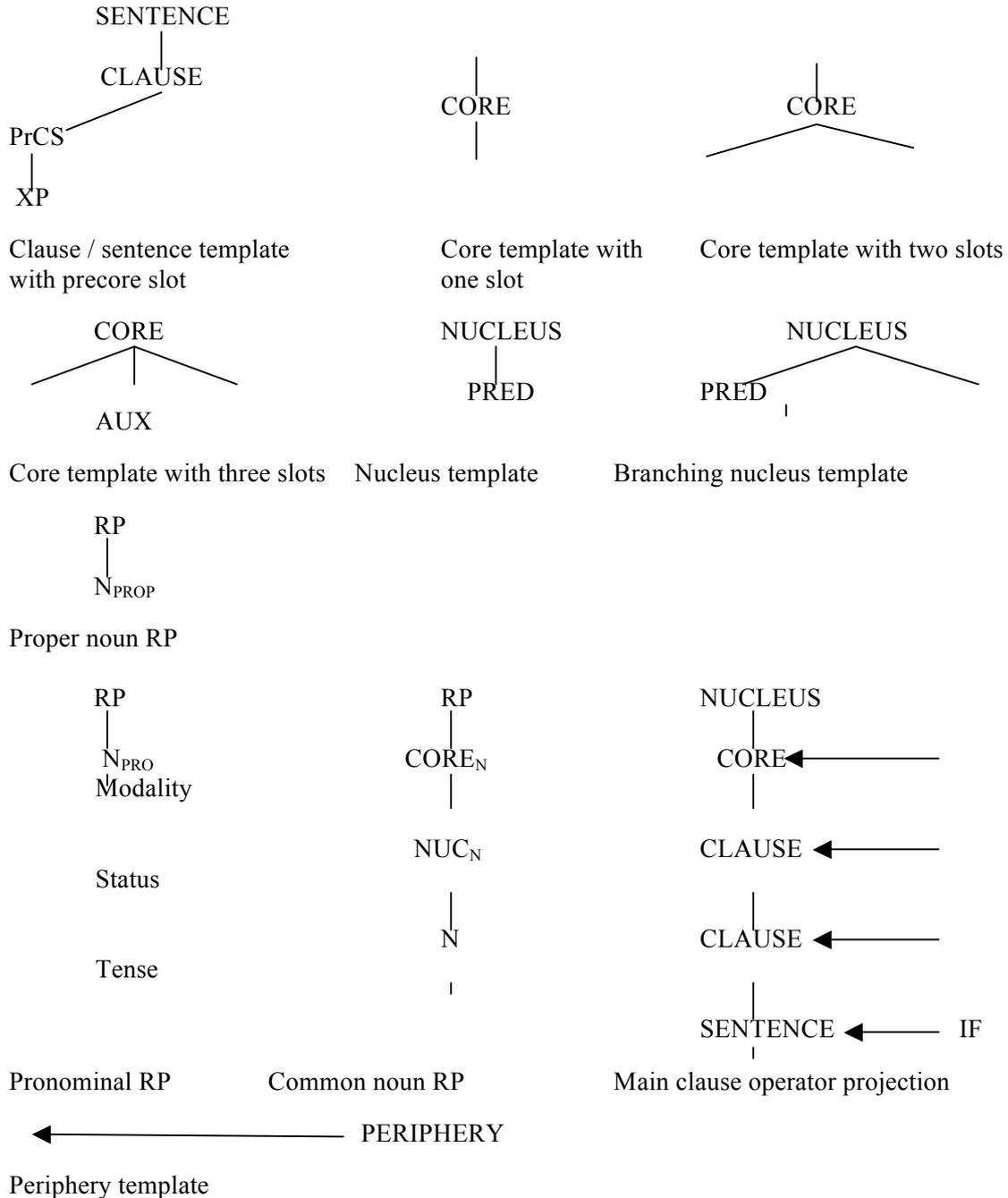PERIPHERY

Periphery template

Figure 5. Extract of Icelandic syntactic inventory (cf. Van Valin and Diedrichsen 2006: 4)

In Icelandic the actor is the unmarked choice for the PSA. When both actor and undergoer occur in a clause the actor is the highest-ranking macrorole. The other macrorole with transitive or ditransitive verbs takes accusative case. In cases where direct arguments are not assigned a macrorole status they have dative case. From this follows that dative is the default case for direct arguments (cf. Van Valin 1991: 171-2).

(69) Case assignment rules for Icelandic prepositions (cf. Van Valin and Diedrichsen 2006: 6)
   a.   Assign accusative case to the second argument with verbs of motion (cf. Einarsson 1945: 106)
   b.   Assign accusative case to the first argument of **be-LOC`**(x, y)
   c.   Assign dative case to the first argument of [PROC … INGR] / INGR **be-LOC´**(x, y)
   d.   Assign dative case to verbs of rest (cf. Einarsson 1945: 110)

Following Einarsson (1945: 108-10), it is possible for most of the Icelandic prepositions to occur with both dative and accusative case. The case assignment with preposition in Icelandic is specified in the lexical entry of the preposition, if it is not handled by the case assignment principles in (69).

(70) Agreement principles for Icelandic (Van Valin 1991: 173)
- a. The finite verb agrees with the highest ranking macrorole in its clause.
- b. Predicate adjectives and passive particles agree with the undergoer of the predicate of which they are a part.

The agreement principles in Icelandic are very similar to the agreement principles given in Van Valin and Diedrichsen (2006: 6). The agreement principles are aligned with the case marking rules in Icelandic which also handle quirky case marking in Icelandic. Following Van Valin (1991), case marking in Icelandic is not as quirky as assumed elsewhere, since most occurrences of quirky cases are governed by the lexical entry of the verb.

(71)   Accessibility to PSA hierarchy: the highest ranking argument (cf. Van Valin 1991: 181) with respect to the actor end of the AUH, regardless of whether it is a macrorole or not, is the PSA.

The PSA selection hierarchy was given in (68). However, this was based on the analysis of normal case marking with verbs only. In Icelandic, quirky case marking is found. This requires the revision of the PSA selection hierarchy for Icelandic (cf. Van Valin 1991: 181). In this context Van Valin (1991: 181) explains that the case marking rules and agreement rules in (69) and (70) make reference to macroroles. This necessitates the correct accessibility to the coding trigger hierarchy to be Actor < Undergoer. In verbs like *Þykja* 'think, consider', the coding trigger is not always the PSA. With this verb, it is the dative (experiencer) RP which is the trigger (cf. Van Valin 1991: 181). This is due to the fact that in Icelandic some verbs appear to be transitive, but lexically and syntactically they are intransitive. Therefore Van Valin (1991: 181) argues for the experiencer argument is not an actor but simply a direct core argument. The accessibility to the PSA selection hierarchy makes reference to more than just the macroroles of actor and undergoer. In terms of the AUH in figure 4, the experiencer (dative RP) outranks the theme (nominative undergoer) with respect to the actor end of the hierarchy. Therefore it is the highest ranking direct core argument that will be the behavioral PSA in these clauses (cf. Van Valin 1991: 181).

The theory internal advantages of the assumption of an obligatory PrCS are that in simple tense forms the finite main verb always occupies the first position in the core. With respect to the use of syntactic templates as assumed in Van Valin (2005) this has the advantage that fewer rules for the constructions of syntactic templates need to apply and the LSC with both topicalized simple main declarative sentences and main declarative sentences remains stable. The linking algorithm from semantics to syntax for Icelandic is based on the principles mentioned above and takes the assumption of an obligatory PrCS into account. In what follows I will analyze the linking from semantics to syntax for a sample of some simple Icelandic main declarative sentences.

(71) Linking rules for Icelandic: Semantics to Syntax (cf. Van Valin and Diedrichsen 2006: 7)
1. Construct the semantic representation of the sentence based on the LS of the predicator by the use of inheritance rules.
2. Determine the actor and undergoer assignments, based on the AUH.
3. Determine the morphosyntactic coding of the arguments
   - a. Select the PSA based on the accessibility to PSA hierarchy (68)
   - b. Assign the appropriate case markers, definite article suffixes and prepositions to the arguments.
   - c. Assign the agreement marking:
     1. Verbal
        - a. Assign the agreement based in the principles in (67)
          - a. In present and past tense the agreement marking is on the nucleus.
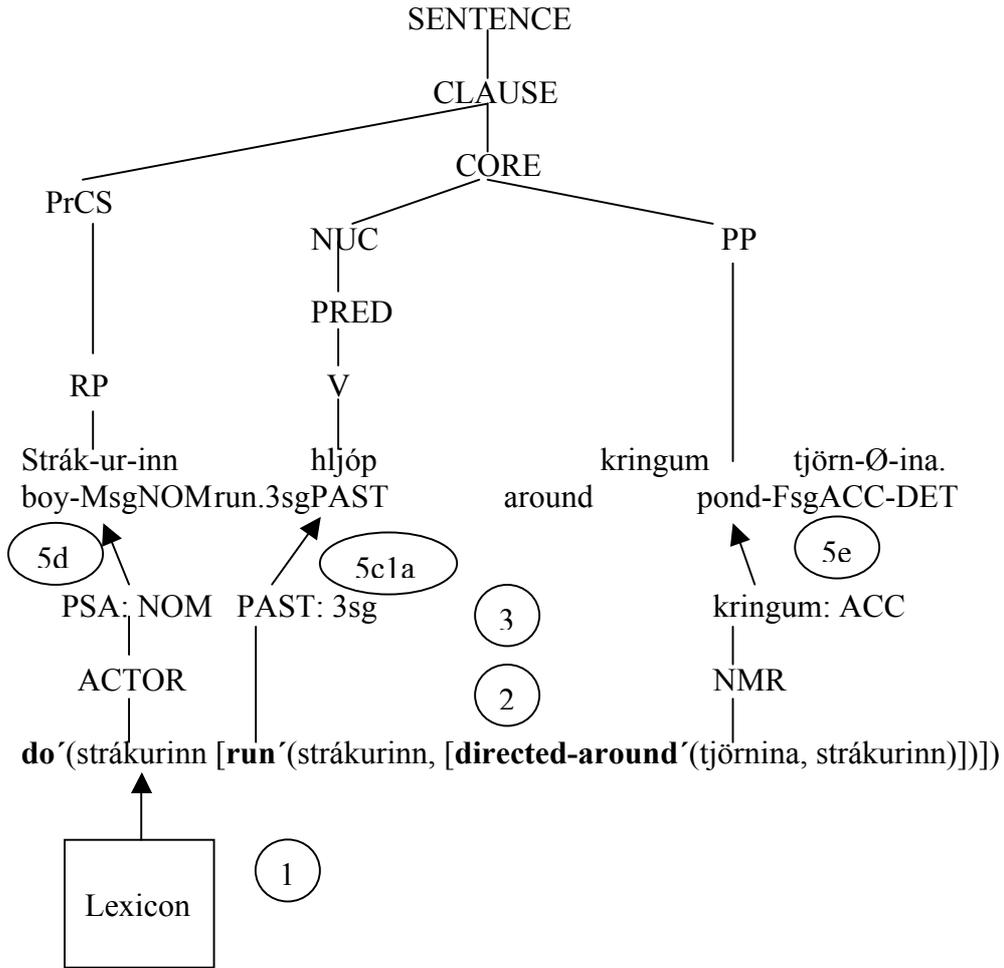
b. In complex tense forms, the passive and copular constructions the agreement marking is on the auxiliary (nuclear or operator auxiliary)

2. Nominal: case, number and gender agreement is determined and attached as suffixes to the nouns.

3. Select the syntactic template(s) for the sentence
   a. In simple main declarative sentences and questions, select the clause template with the PrCS.
   b. With the core template follow the core template selection principles in (1)
   c. With the nucleus template:
      1. Select the branching template in cases where an non-finite auxiliary occurs.
      2. otherwise, select a non-branching template.
   d. With RPs select the appropriate template depending whether the RP is pronominal, a common noun or a proper noun.
   e. Select the periphery template for all adjunct modifiers.

4. Assign the elements in the LS to the appropriate positions in the syntactic representation.
   a. Assign the predicate to the nucleus.
   b. Assign the operator projection template to the nucleus and attach the morphemes expressing operators to the nucleus.
   c. Assign the nucleus to a position in the clause.
      3. In main clauses:
         a. if the nucleus is finite, assign the nucleus to the first postion in the core (default) or assign the nucleus to the PrCS in cases of topicalization or yes/ no questions.
         b. Assign the non-finite nucleus to the last position of the core with intransitive verbs or to the next to last position with transitive verbs (default). In cases of topicalization assign the non-finite nucleus to the next to the last position of the clause if the sentence contains a negative sentence adverb. Otherwise follow Holmberg's generalization. Non-finite auxiliaries are placed after the finite-auxiliary and assign the non-finite nucleus to the next to last position of the clause (default) otherwise use negative OS and place the non-finite nucleus to the last position of the core.
         c. if the nucleus is non-finite, assign it to the last position in the core
         d. if the nucleus is in the PrCS,
            1. the nucleus in the PrCS always needs to be finite.[9] It is either an imperative or occurs in ongoing writing.
   d. An element must be assigned to the PrCS, [+ WH] > other.
   e. Remaining elements are assigned to the core and periphery
      1. General constraints: pronoun > other, RP > PP
      2. Case-based arguments ordering constraint: NOM > DAT > ACC (default)
      3. If ACC = pronoun, then ACC > DAT (default)

(72) Strák-ur-inn   hljóp   kringum tjörn-Ø-ina.
      boy-MsgNOM   ran.3sgPAST   around   pond-FsgACC-DET
      'The boy ran around the pond.'

Step 1: Construct the semantic representation in the lexicon.

   a. Access the LS for *hlaupa* 'run' and select the prepositional LS to fill the **be-LOC′** slot in LS, *kringum* 'around':
      do′(x [**run′**(x, [**be-LOC′**(y, x)]) + **directed-around′**(_ , _) =>
      do′(x [**run′**(x, [**directed-around′**(x, y)])])

   b. Determine the value of the operators to be expressed:
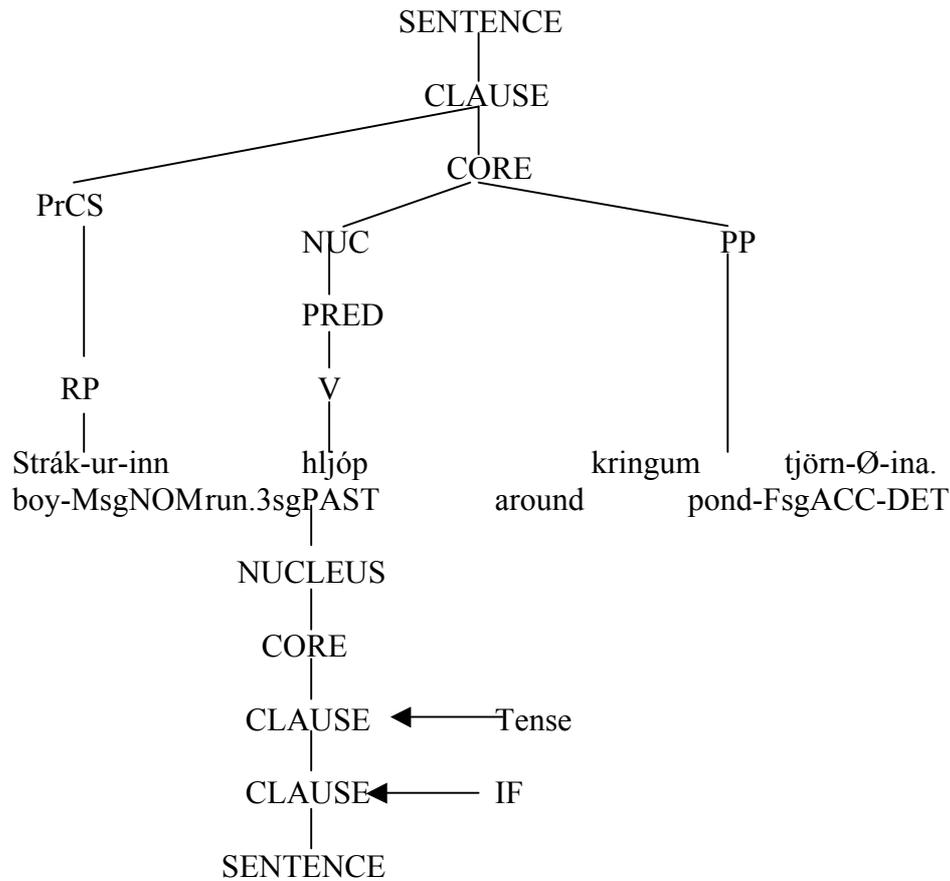 $<_{IF}$DEC$<_{TNS}$PAST$<$**do′**(x [**run′**(x, [**directed-around′**(y, x)])])$>>>$

---

[9] Following Magnúsdóttir it is not possible to have a non-finite nucleus in the PrCS with finite auxiliaries following.

c. Select the referring expressions to fill the variable positions in LS:
   <$_{IF}$DEC<$_{TNS}$PAST< **do**´(strák-[**run**´(strák-[**directed-around**´(tjörn-, strákurinn)])])>>>

Step 2: Determine the actor and undergoer assignments:

<$_{IF}$DEC<$_{TNS}$PASR<**do**´(ACT: strák- [**run**´(strák-, [**directed-around**´(tjörn-, strák-)])])>>>

Step 3: Determine the morphosyntactic coding of the arguments:

a. PSA selection: Actor as sole macrorole is selected as PSA.
b. Actor is assigned nominative case as highest ranking macrorole; preposition *kringum* is assigned to *tjörn* 'the pont', which receives accusative case due to being the first argument of **directed-around**´, a dynamic location.
c. As tense is past the agreement marking is on the nucleus. The nucleus will agree with the actor since it is the highest ranking macrorole.

Step 4: Select syntactic templates:

a. Select the PrCS template, which is obligatory in main declarative clauses in Icelandic.
b. d.n.a.
c. Select a two-place core, one place for the nucleus and one for the PP.
d. Select a nucleus template.
e. Select a common noun RP templates and a predicative PP template.

Step 5: Assign the LS elements to the positions in the syntactic representation:

a. Assign the predicate to the nucleus.
b. Join the operator projection template to the nucleus and attach the morphemes expressing operators to it.
c. (1a) since the nucleus is finite, link it to the first position in the core.
d. Link the nominative case actor *strákurinn* to the PrCS.
e. Link the PP to the remaining core position.
   Completeness constraint satisfied. (cf. Van Valin and Diedrichsen 2006: 10)

(cf. Van Valin and Diedrichsen 2006: 9)

Figure 6 Syntactic inventory and template construction

SENTENCE

CLAUSE

CORE

PrCS

NUC

PP

PRED

RP

V

Strák-ur-inn   hljóp   kringum   tjörn-Ø-ina.
boy-MsgNOMrun.3sgPAST   around   pond-FsgACC-DET

(5d)

(5c1a)

PSA: NOM   PAST: 3sg   kringum: ACC

(3)

ACTOR   NMR

(2)

do´(strákurinn [**run´**(strákurinn, [**directed-around´**(tjörnina, strákurinn)])])

Lexicon   (1)

(cf. Van Valin and Diedrichsen 2006: 10)

Figure 7 Simplified diagram of the semantics to syntax linking

Figure 7 gives a simplified diagram of the linking. The numbers refer to the steps in the linking algorithm. In figure 8 the resulting tree structure with constituents and the operator projection is given (cf. Van Valin and Diedrichsen 2006: 10).

SENTENCE

CLAUSE

CORE

PrCS   NUC   PP

PRED

RP   V

Strák-ur-inn   hljóp   kringum   tjörn-Ø-ina.
boy-MsgNOM run.3sgPAST   around   pond-FsgACC-DET

NUCLEUS

CORE

CLAUSE ← Tense

CLAUSE ← IF

SENTENCE

(cf. Van Valin and Diedrichsen 2006: 10)

Figure 8. Resulting tree structure with constituent and operator projection

In the next example I will develop a linking algorithm for a verb-first question before I will show how the linking from syntax to semantics for Icelandic works.

(73)   Las   strák-ur-inn   bók-i-na?
         read.3sgPAST   boy-MsgNOM-DET   book-FsgACC-DET
         (cf. Thráinsson 2007: XX)

Step 1: Construct the semantic representation in the lexicon.
     a.   Access the LS for *lesa* 'read':
         do´(x [**read´**(x, y)])
     b.   Determine the value of the operators to be expressed:
         $<_{IF}$INT$<_{TNS}$PAST$<$**do´**(x [**read´**(x, y)])$>>>$
     c.   Select the referring expressions to fill the variable positions in LS:
         $<_{IF}$INT$<_{TNS}$PAST$<$**do´**(strák- [**read´**(strák-, bók-)])$>>>$

Step 2: Determine the actor and undergoer assignments:
         $<_{INF}$INT$<_{TNS}$PAST$<$**do´**(ACT: strák- [**read´**(strák-, UND: bók-)])

Step 3: Determine the morphosyntactic coding of the arguments:
     a.   PSA selection: Actor as highest ranking macrorole is selected as PSA.
     b.   Actor is assigned nominative case as highest ranking macrorole; Undergoer is assigned accusative case as the other macrorole.
     c.   As tense is past the agreement marking is on the nucleus. The nucleus will agree with the actor as it is the highest ranking macrorole.

Step 4: Select syntactic templates:

a.   Select the PrCS template which is obligatory in Icelandic.
b.   Select the nucleus template and attach it to the PrCS template.
c.   Select a two place core, one place for the actor RP and one for the undergoer RP.
d.   Select two common noun RP templates.

(cf. Van Valin and Diedrichsen 2006)
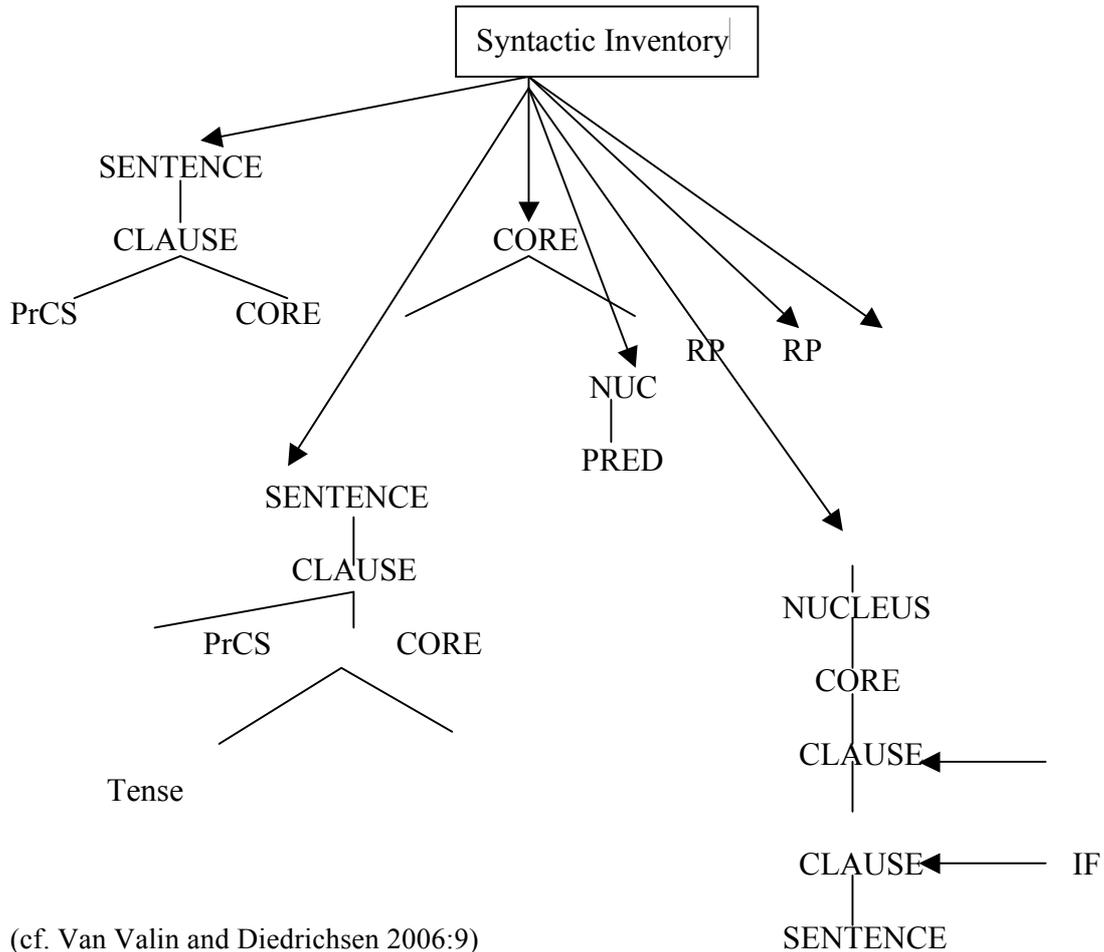
(cf. Van Valin and Diedrichsen 2006:9)
Figure 9 Syntactic inventory and template construction

Step 5: Assign the LS elements to the positions in the syntactic representation:

a.   Assign the predicate to the nucleus.
b.   Join the operator projection template to the nucleus and attach the morphemes expressing operators to it.
c.   Since the sentence is interrogative assign the finite verb in the Nucleus to the PrCS.
d.   Assign the nominative case actor *strákurinn* to the first position in the core.
e.   Assign the accusative case undergoer *bókina* to the remaining core position.
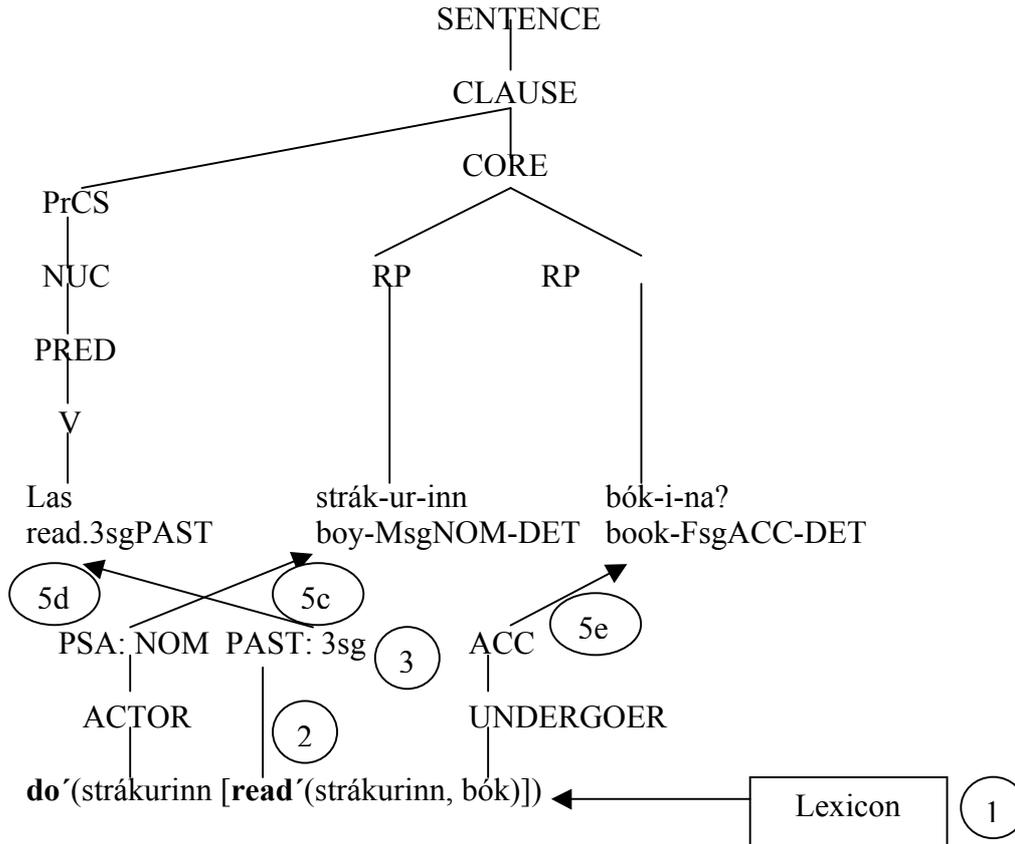   Completeness constraint statisfied   (cf. Van Valin and Diedrichsen 2006)

SENTENCE

CLAUSE

CORE

PrCS

NUC

PRED

V   RP   RP

Las   strák-ur-inn   bók-i-na?
read.3sgPAST   boy-MsgNOM-DET   book-FsgACC-DET

5d   5c

PSA: NOM   PAST: 3sg   3   ACC   5e

ACTOR   2   UNDERGOER

do´(strákurinn [**read´**(strákurinn, bók)])   Lexicon   1

Figure 10. Simplified diagram of the semantics to syntax linking

Figure 10 gives a simplified diagram of the linking. The numbers refer to the steps in the linking algorithm. In figure 11 the resulting tree structure with constituents and the operator projection is given (cf. Van Valin and Diedrichsen 2006: 10).
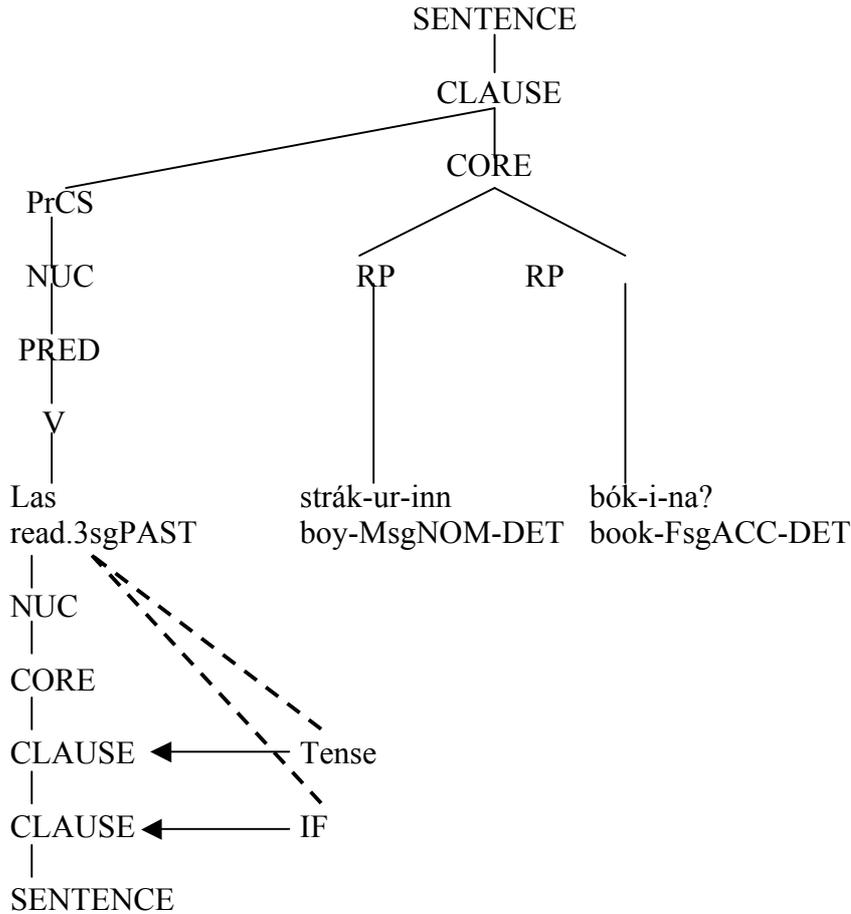
SENTENCE
|
CLAUSE
|
CORE

PrCS

NUC   RP   RP

PRED

V

Las   strák-ur-inn   bók-i-na?
read.3sgPAST   boy-MsgNOM-DET   book-FsgACC-DET
|
NUC
|
CORE
|
CLAUSE ◄───────── Tense
|
CLAUSE ◄──────── IF
|
SENTENCE

Figure 11. Resulting tree structure with constituent and operator projection

In the last example I will describe the semantics to syntax linking for an Icelandic sentence with a case of topicalization

(74)   Þjóf-Ø-inn   fann   lögreg-l-an
        thief-MsgACC-DET   find.3sgPAST   police-FsgNOM-DET

Step 1: Construct the semantic representation in the lexicon.
   a. Access the LS for *finna* 'find':
      do´(x [**find´**(x, y) & INGR **be-found´**(y) Determine the value of the operators to be expressed:
      $<_{IF}$DEC$<_{TNS}$PAST$<$**do´**(x [**find´**(x, y) & INGR **be-found´**(y)]$>>>$
   b. Select the referring expressions to fill the variable positions in LS:
      $<_{IF}$DEC$<_{TNS}$PAST$<$**do´**(lögregl- [**find´** (lögregl-, Þjóf-) & INGR **be-found´**(Þjóf-)$>>>$

Step 2: Determine the actor and undergoer assignments:
$<_{INF}$DEC$<_{TNS}$Past$<$**do´**(ACT: lögreglan [**find´**(lögregl-, Þjóf-) & INGR **be-found´**(UND: Þjóf-)$>>>$

Step 3: Determine the mophosyntactic coding of the arguments:
   a. PSA selection: Actor as highest ranking macrorole is selected as PSA.
   b. Actor is assigned nominative case as highest ranking macrorole; Undergoer is assigned accusative case as the other macrorole.
   c. As tense is past the agreement marking is on the nucleus. The nucleus will agree with the actor as it is the highest ranking macrorole.

Step 4: Select syntactic templates:
   a. Select the PrCS template which is obligatory in Icelandic.

b. d.n.a.
c. Select a two-place core, one place for the nucleus and one for the RP.
d. Select a nucleus template.
e. Select two common noun RPs. (cf. Van Valin and Diedrichsen 2006: 10)
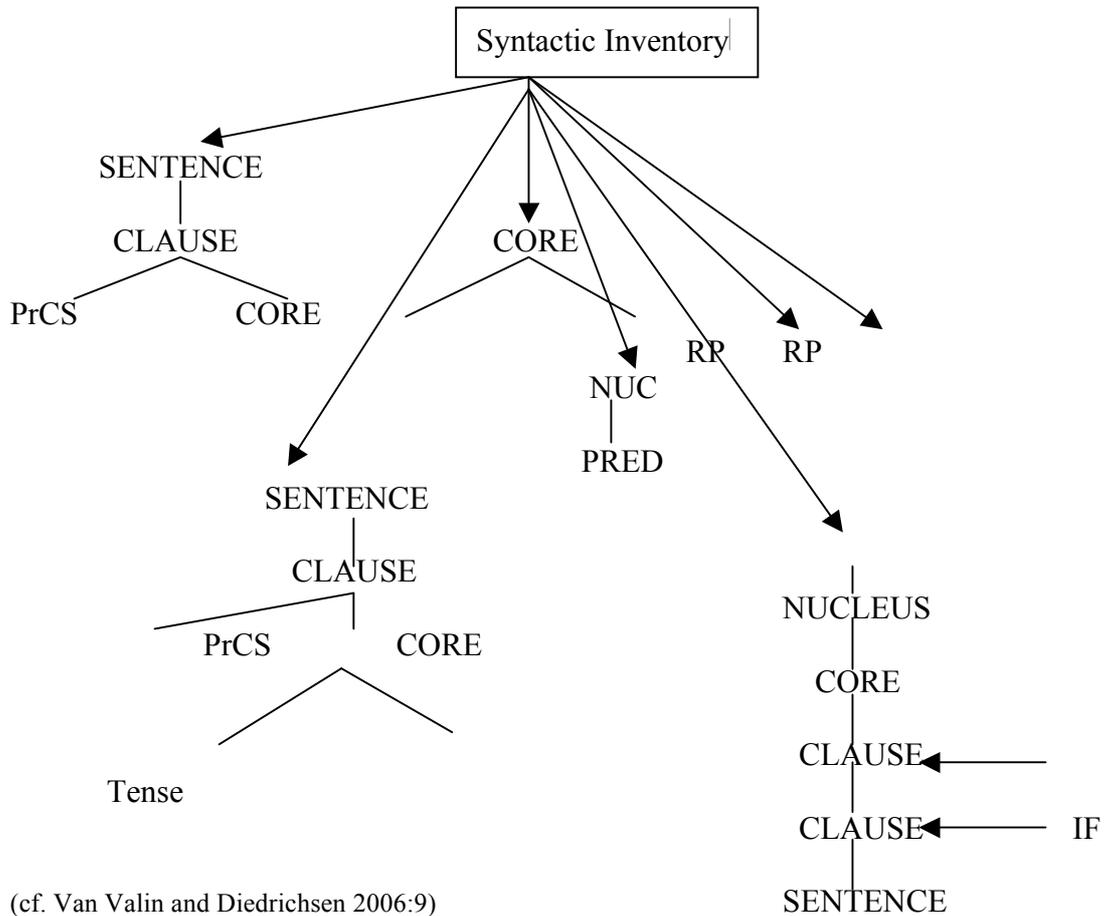
(cf. Van Valin and Diedrichsen 2006:9)
Figure 12. Syntactic inventory and template construction

Step 5: Assign the LS elements to the positions in the syntactic representation:

a. Assign the predicate to the nucleus.
b. Join the operator projection template to the nucleus and attach the morphemes expressing operators to it.
c. (1a) since the nucleus is finite link it to the first position in the core.
d. Link the nominative case undergoer *Þjófinn* to to the PrCS
e. Link the actor RP to the remaining core position.
   Completeness constraint satisfied. (cf. Van Valin and Diedrichsen 2006: 10)

SENTENCE

CLAUSE

CORE

PrCS

NUC   RP

PRED

RP   V

Þjóf-Ø-inn   fann   lögregl-a-n
thief-MsgACC   find.3sgPAST   police-FsgNOM-DET

(5d)   (5c)

PSA: NOM   PAST: 3sg (3)   ACC (5e)

ACTOR   (2)   UND

do´(lögreg- [**find´** (lögreg-, Þjóf-) & INGR **be-found´**(Þjóf-) | Lexicon |
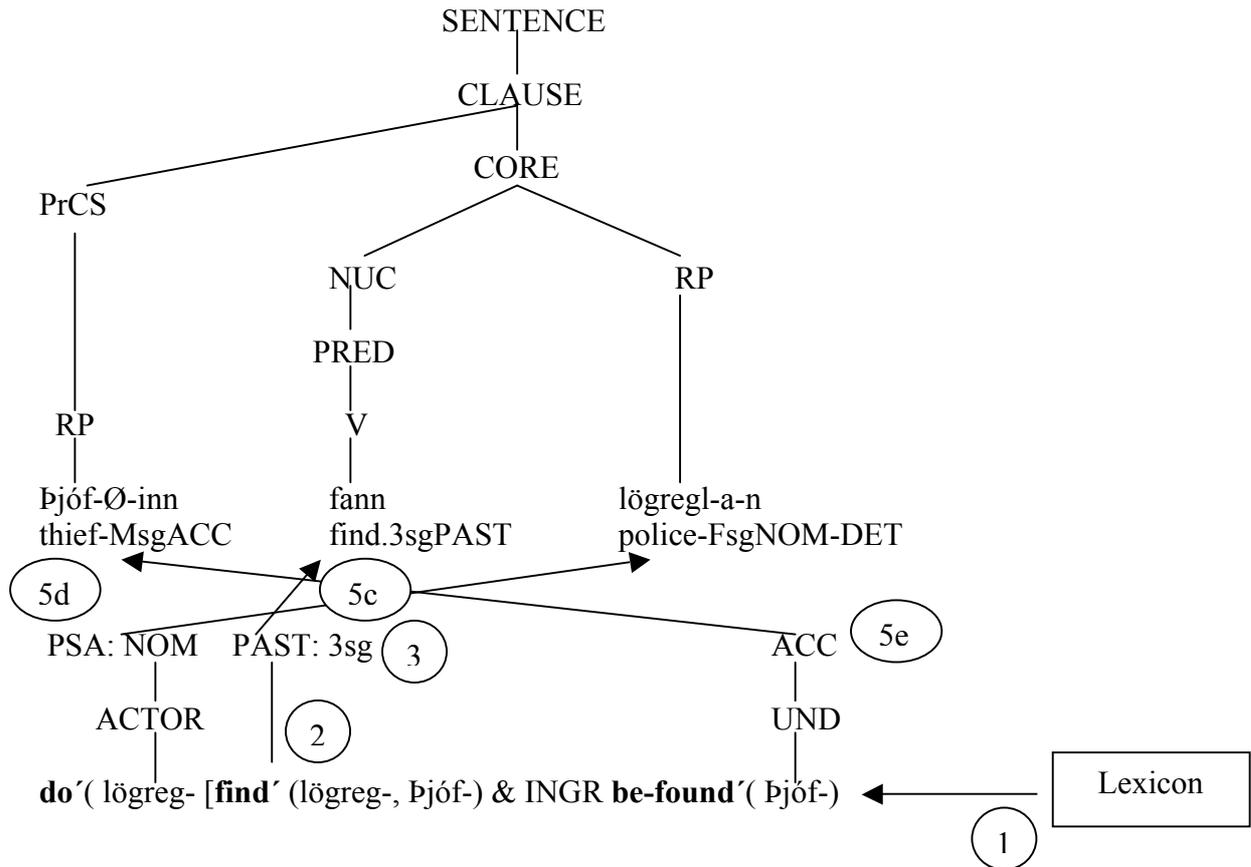
(1)

Figure 13. Simplified diagram of the semantics to syntax linking

Figure 13 gives a simplified diagram of the linking. The numbers refer to the steps in the linking algorithm. In figure 14 the resulting tree structure with constituents and the operator projection is given (cf. Van Valin and Diedrichsen 2006: 10).

What was shown in this section thus far is that the assumption of an obligatory PrCS in Icelandic has the advantage that the linking algorithm makes correct assumptions for the linking from semantics to syntax for simple Icelandic active voice main declarative sentences. This was shown with an Icelandic sentence which exhibits basic word order as in (72), with an example of the V1-phenomenon in questions as in (73), and in cases of topicalization in (74). This means that besides the structural motivation for an obligatory PrCS as given in section 3, there are also theory internal reasons for the assumption of an obligatory PrCS, as was shown in this section. This analysis of Icelandic clause structure will be concluded in section 5, where further questions regarding clause structure in V2-languages will be posed.
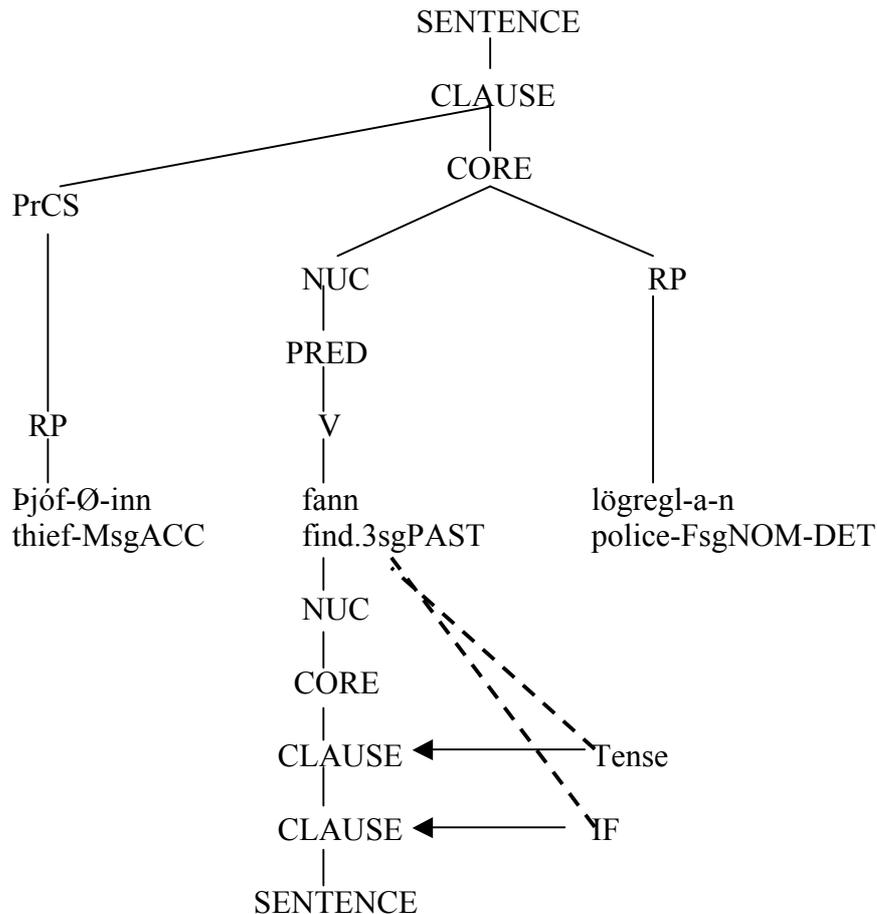
```
                        SENTENCE
                            |
                         CLAUSE
                        /       \
                              CORE
                            /      \
                         NUC          RP
                          |            |
                        PRED           |
                          |            |
             RP           V            |
              |           |            |
         Þjóf-Ø-inn      fann       lögregl-a-n
         thief-MsgACC   find.3sgPAST  police-FsgNOM-DET
                          |
                         NUC
                          |
                        CORE
                          |
                       CLAUSE  ◄──────── Tense
                          |
                       CLAUSE  ◄──────── IF
                          |
                       SENTENCE
```

Figure 14. Resulting tree structure with constituent and operator projection

5.0 Conclusion

In the previous sections I have analyzed Icelandic clause structure within the typological model Thráinsson (2007: 19) has introduced for Icelandic based on Diderichsen (1945, 1964). As shown in section 2, Icelandic is a V2-language where the verb always remains in the V2-position, even in cases of topicalization. In section 3, a semantic test was introduced, showing that the F-position within the topological model introduced in section 0 should be analyzed rather as core-external position. It thereby comes to be regarded as PrCS rather than as core-internal element. In section 4, the semantics-to-syntax linking algorithm for Icelandic was developed. As shown in section 4 passing on the PrCS in the syntactic inventory of Icelandic results in wrong predictions, while the assumption of an obligatory PrCS offers correct predictions for the semantics-to-syntax linking in Icelandic.

Theory external and theory internal reasons for the assumption of an obligatory PrCS in Icelandic were hereby given. It appears to be the case that the ambiguity of modal verbs and the V2-phenomenon, which is found in several Germanic V2-languages, like Icelandic, German (Diedrichsen 2008) and Danish (Tháinsson and Vikner 1991), suggests that it is reasonable to equal the front-position in these languages with the PrCS in RRG-terms. For Germanic V2-languages this could mean that all these languages have an obligatory PrCS. So the important question is whether the V2-phenomenon in general makes the assumption of an obligatory PrCS necessary, or if there are further mechanisms at work. One further question with respect to V2-languages is if the V2-phenomenon causes modal verbs in these languages

to be ambiguous between an epistemic and a deonic reading or if this results from idiosyncratic features of the modal verb in question. These are questions for future research.

In general, this analysis of clause structure in Icelandic, in addition to Diedrichsen's (2008) work on German clause structure, shows that the PrCS does not generally have a pragmatic status only in RRG, as it is assumed in Van Valin (2005: 8), but can also be part of the basic clause structure in some languages. This results in a future task: The semantic, syntactic and pragmatic definition of the PrCS in RRG needs to be revised and sharpened.

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