The Diderichsen Sentence Model
- a flexible tool in syntactic analysis

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1. Introduction

The Diderichsen Sentence Model, often termed ‘Sentence Scheme’ in correspondance with the Danish term “sætningsskema”, is a time-honoured syntactic model, conceived in the 1930'ies and still a useful tool in syntactic investigation of languages with a relatively fixed word order, like the Mainland Scandinavian languages. Similar models have been developed for German, and the application of such models to languages like Icelandic, Faroese, English and French is possible.

The main idea of the model is that the single phrases of the sentence, identified through standard methods of commutation (permutation, subtraction, substitution etc.), are placed in a narrow set of slots, whose definitions may vary according to the needs at the level of description desired. These slots follow one another in one fixed sequence, occasionally two, as is the case in Danish. The true point of such slot models is exactly the need to define what comes into which slot; my generalised overview of the research within the slot model will focus on this problem.

The Mainland Scandinavian tradition for syntactic slot models originates from the work of Paul Diderichsen (1905-1964), professor of Danish language at the University of Copenhagen from 1943 until his early death. His work on Danish was soon followed by similar attempts in Norwegian (Bleken 1971, Bruaas 1970, Faarlund, Lie and Vannebo 1997) and Swedish (e.g. Lindberg 1973, Thorell 1972). Diderichsen is still seen as a front figure in Danish linguistics, maybe a somewhat astonishing attitude if you consider how much linguistic theory has developed since the middle of the 20th century. Nevertheless, Diderichsen’s place in the hall of fame is justified by the fact that his approach to language still is up to date and contains many important features still valuable in a descriptive context. Furthermore the slot system allows one to accommodate widely different criteria for the admission into the slots, ranging from morphological criteria to pragmatic ones. The aim of this paper is to make an outline of Diderichsen’s central qualities in these respects.

2. The first approach

Diderichsen’s approach to syntax was formed in the 1930'ies in Copenhagen, when central aspects of linguistic theory were unde development within the *Cercle linguistique de Copenhague*, a group with which Diderichsen was closely associated. Within this circle two modern approaches were represented in nuclear forms, Formal linguistics by Louis Hjelmslev and Functional linguistics by Viggo Brøndal. Brøndal, today mainly thought of as a structuralist thinker, was the main source of inspiration to Diderichsen. Diderichsen found
Hjelmslev’s formalistic approach uninteresting or directly nonsensical, and only after he had built his syntactic approach did he turn to Hjelmslev for a short period.¹

Brøndal’s approach to linguistics is very much oriented towards abstract meaning categories established through logic or mathematics. However one fundamental aspect of his approach were the four fundamental categories utilised to build both word class systems and syntactic systems. These categories had their background in philosophy, mainly Husserlian phenomenology and Russelian logic of mathematics; but the way Brøndal treated them in syntax, makes a functional system out of it, assuming that sentences move from common, shared meaning elements towards new elements. This sequencing, well-known from other functional approaches, was in many ways taken over by Diderichsen, but he founded it on an interpretation of the actual mass of expressed sentences, it was not merely a conclusion established through deduction from speculative facts, as Brøndal to some extend did.

A more direct link to early functionalism is Aage Hansen (1933), a propagator of a quasi-formally oriented theme-rheme-progression as the basis of syntax. Diderichsen acknowledged his debt to this book only late in his life²; nevertheless, it is clear that in Hansen’s book, he found quite many of the ideas about the sentence as related in a more concrete sense to its context. Finally, Otto Jespersen’s concept of nexus is one of the sources that Diderichsen himself pointed to (Diderichsen 1962 p. forord). The radical remodelling of this concept makes it difficult to say to what extent Diderichsen really used Jespersen, or whether, when he published his statement in 1946, he just made an inclination to the recently deceased Jespersen (†1943) in order to avoid the traumatic discussion between Hjelmslev and Brøndal.

Diderichsen laid down the foundation of his syntactic approach in a tiny paper from 1935 (Diderichsen 1936), in which he outlines many of the facts that later came to have importance. In a sense the early outline was never surpassed in elegance and theoretical pretentions. Starting with a formalistic organisation of the main clause into slots, he manages to build in important functional aspects of syntactic analysis.

What he does, is the following. He starts out by distinguishing two positions occupied by the finite verb and the infinite verbs, respectively. These slots are recognisable because of the inflected material that they encompass. Between and after the two slots defined by the position of the verbs Diderichsen distinguishes two more slots, one for the elements of the sentence that relate to the verb as valency fillings, and another for non-bound material the adverbs. The term of valency does not come up, but the phrasing of the passage makes it clear that this is actually the criterion. Some examples demonstrate that true objects and prepositional objects were not distinguished at this point, as they were later.

These are the types of syntactic elements that he outlines:

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² Diderichsen 1964 (repr. 1966)
1. finite verb forms \{v\}
2. nonfinite verb forms entering into a hypotactic chain with a finite verb (and thus making up the verbal phrase that constitutes the sentence) \{V\}
3. nominal phrases directly dependent on the verb as subjects, objects and complements \{s or S for ‘substantial’, later changed into n and N for ‘nominal’\}
4. All other phrases, under the cover term of ‘adverbs’ \{a or A\}.

Although no overt model is drawn, these syntactic elements may easily be joined into a sentence model:

<table>
<thead>
<tr>
<th>Open slot</th>
<th>v</th>
<th>s - a</th>
<th>V</th>
<th>S - A</th>
</tr>
</thead>
</table>

The model is mainly built through induction: empirical experience tells you that you may see any (or at least most) Danish sentences as organized within such a model. No explicit theoretical axioms are involved. Nevertheless Diderichsen probably did not work without theoretical pretentions. In spite of the inductive approach he is well aware of the impact of his findings, and prominently among these the open slot in front of the finite verb. This slot has important effects in relation to the pragmatic function of sentence, connecting it with the preceding text. Diderichsen is explicitly aware of this: <quote slutningen>

The next step in the development was Diderichsen’s 1941 thesis on the Syntax in the Law of Scania, an important law book written in the early middle ages and frequently considered to be the earliest original piece of Danish prose. Diderichsen’s book deals with several aspects of the practical analysis of Middle Danish syntax, but adds little to the greater lines in his syntactic theory. Its importance lies in the clarification of certain matters, among others the relation between sentence function and slots, a matter to be discussed below.

More important to the practical development was the Danish university grammar, *Elementær dansk Grammatik*, published in 1946. This is the first place where the sentence model receives a graphical form, as is illustrated below in figure 1 and 2:
"And then he could certainly not anyhow get her a message through on time"
The most important aspect of this model is not so much its actual exterior, but rather all those issues that were left as marginal in the model. The main criterion for admission into a slot is the grammatical nucleus of a construction: if the nucleus is a verbal form, the construction goes into the \( v \) and \( V \) slots, if the nucleus is a nominal form, the construction goes into the nominal slots \( n \) and \( N \), and everything that has other types of nuclei, is dismissed as ‘adverbs’ and go into the \( a \) and \( A \) slots. No attempt is made to continue the idea that valency decides when prepositional phrases are adverbial and when they are objects. The criteria for admission may be summarized like this:

<table>
<thead>
<tr>
<th>Forbinderfelt</th>
<th>Neksusfelt ‘Neksus field’</th>
<th>Indholdsfelt ‘Content field’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sideordnende konj. - ( ks )</td>
<td>Underordnende konj. - ( ku )</td>
<td></td>
</tr>
<tr>
<td>Slot of conjoining conjunctions</td>
<td>Slot of subordinating conjunctions</td>
<td>Slot of subject</td>
</tr>
<tr>
<td>( og )</td>
<td>( at )</td>
<td>( han )</td>
</tr>
<tr>
<td>‘and’</td>
<td>that</td>
<td>he</td>
</tr>
</tbody>
</table>

\( sikkert ikke alligevel \)
\( kunde \)
\( faa sagt \)
\( hende Besked \)
\( i Tide \)
\( certainly not anyhow \)
\( could \)
\( get said \)
\( her a word \)
\( on time \)
<table>
<thead>
<tr>
<th>Slot</th>
<th>Necessary criteria</th>
<th>Additional criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>slot for nominals or adverbs</td>
<td>usually connecting up with the context (anaphoric or deictic)</td>
</tr>
<tr>
<td>v</td>
<td>slot for the finite verb form</td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>slot for nominals</td>
<td>usually the position of the subject (and unstressed pronouns)</td>
</tr>
<tr>
<td>a</td>
<td>slot for adverbs</td>
<td>usually the position of sentence adverbs or adverbs that have a special meaning in the context</td>
</tr>
<tr>
<td>V</td>
<td>slot for non-finite verb forms</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>slot for nominals</td>
<td>usually the position of objects and complements</td>
</tr>
<tr>
<td>A</td>
<td>slot for adverbs</td>
<td>usually the position of circumstantial adverbs: time, place and manner</td>
</tr>
</tbody>
</table>

Important for the further development here are the additional criteria. Diderichsen mentions these extra criteria as some kind of side effects, but they seem to have no real weight in his approach at this stage. Nevertheless, the residual space, where relational and situational facts about the sentence may influence the filling of the slots, is exactly the hot spot where continuous development of the model was possible, and where updating was possible, as we shall see. Diderichsen himself had at certain points of his development also envisaged the inclusion of more compelling criteria for these areas, but given them up again, for reasons difficult to discern now, since only his publications are accessible sources. One set of such discarded criteria is the approximation to a valency theory which would seem necessary to explain why certain prepositional phrases in the 1935 draft were more closely bound to the verb than others. Another, perhaps even more important, discarded line of thought are the ideas that sentences should be seen as pragmatic entities. This idea cannot shock anybody today, but must have been quite revolutionary when drafted in the 1930'ies (Diderichsen 1939). In this early paper, Diderichen makes some interesting points concerning the modi of the sentence structure and connects them with the structure of the text, claiming that ‘indicative’ is a mood where internal contradiction in terms is unacceptable to the hearer, whereas other moods may allow inconsequences and flaws.3 However such ideas found no room in the classical formulation of the Diderichsen slot model; it has been up to later research to try to integrate them. How this has been done, is the subject of the next paragraphs.

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3 The arguments in favour of this interpretation are presented in greater detail in Jørgensen 2000b.
3. Integration of relational facts

The seminal paper concerning relational facts was Hansen 1970. There is little reason to delve into the argumentation, but the main point is that the slots from now on were tied closely with the grammatical functions. The fact that grammatical subjects only could occupy the n slot, and that all other kinds of nominal phrases had to find their way into N, was from now on not just a coincidental fact, but was foreseen by the dogma.

Hansen reached this through the introduction of special linear valency schemes for the individual verbs; these schemes are not demonstrated in his paper, but the addition of them is in fact a variant of the Diderichsen model. The importance of this model is that the slots are now linked directly with their grammatical functions. First the independent model used by all verb forms that are not governed by other verbs:

\[
\text{ks} \quad V \quad S \quad L \quad a1 \quad Oi \quad Od \quad P \quad \text{Adv} \quad a2
\]

Note the inclusion of P: a slot of predicatives and certain adverb types, of separate slots for the three canonical relational functions (S = subject, Oi = indirect object, Od = direct object), of a slot for unstressed pronominal elements (L) and of three adverb slots. The model, as it stands here, is mainly relationally oriented, but certain slots do not connect with classical syntactic analysis, like the P, which subsumes several types, usually treated as independent in other analytical traditions. In this analysis, they constitute one category, namely non-verbal elements integrated into the verbal constituent of the sentence.

The dependent model, used by dependent verbs and sentences, has a different ordering of the elements, and certain of them do not exist here, like L:

\[
\text{ks} \quad ku \quad S \quad a1 \quad V \quad Oi \quad Od \quad P \quad \text{Adv} \quad a2
\]

In order to compare them, here is a juxtaposition of them:

\[
\begin{align*}
\text{ks} & \quad V \quad S \quad L \quad a1 \quad Oi \quad Od \quad P \quad \text{Adv} \quad a2 \\
\text{ks} & \quad ku \quad S \quad a1 \quad V \quad Oi \quad Od \quad P \quad \text{Adv} \quad a2
\end{align*}
\]

As one can see, the position of the verbal slot (which in the Hansen analysis may contain only one stem at a time), is the main difference; all other syntactic elements follow the same order. If we then add the fundamentfelt in front of the independent model, we arrive at a working version. However, the main point of Hansen 1970, namely that each verb form needs its own

\[4\]This juxtaposition differs from the one given in Hansen 1970 p. XX (2001 p. 74) through a few more details omitted in the source, but added here for the sake of clarity.
level of the model, and that subsequent verb forms and the syntactic elements attached to
them are in extraposition, makes this version of the model clumsy to handle. Furthermore, the
treatment of any subsidiary verb form as an (extraposed) object seems to miss an important
generalisation, expressed in the traditional conception of the verbal string as forming *one*
constituent. Therefore, the continuation of Hansen’s line of thought has silently put back the
category of auxiliary verbs and hence also given up the obligatory extraposition.⁵

We may try to outline the criteria for this model in the same way as we did with the
original Diderichsen model. For this purpose we use a slightly different version, arrived at
through the efforts of Lars Heltoft, partly in collaboration with Erik Hansen himself.⁶ The new
model is closer to the original Diderichsen model, and thus facilitates the comparison. The
additional criteria for textual factors remains here. Their status is as in the original model:
they are not compelling and do not define the status of the slots.

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⁵ The important question is whether the traditional analysis of Danish auxiliaries has
found everything that needs attention. Phase verbs and aspectual auxiliaries remain poorly
understood, but see Engerer (2007), Rasmussen (forth.).

<table>
<thead>
<tr>
<th>Slot</th>
<th>Morphological criteria</th>
<th>Relational criteria</th>
<th>Textual criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>slot for nominals or adverbs</td>
<td>the position of the subject (and in some cases unstressed pronouns)</td>
<td>usually connecting up with the (anaphoric or deictic) context</td>
</tr>
<tr>
<td>v</td>
<td>slot for the finite verb form</td>
<td>usually the position of sentence adverbs or adverbs that have a special meaning in the context</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>slot for nominals</td>
<td>the position of the subject (and in some cases unstressed pronouns)</td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>slot for adverbs</td>
<td>the position of the subject (and in some cases unstressed pronouns)</td>
<td></td>
</tr>
<tr>
<td>V</td>
<td>slot for infinite verb forms</td>
<td>the position of the two types of objects</td>
<td></td>
</tr>
<tr>
<td>IO-DO</td>
<td>slot for nominals</td>
<td>the position of the two types of objects</td>
<td></td>
</tr>
<tr>
<td>Adv2</td>
<td>slot for adverbs</td>
<td>the position of certain circumstantial adverbs: time(†), place(†) and manner.⁷</td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>slot for additional non-verbal material in the verb phrase</td>
<td>Additional non-verbal material to the verb phrase: verbal particles, nouns and adjectives without determiner, predicatives.</td>
<td></td>
</tr>
<tr>
<td>BA</td>
<td>Slot for valency-bound prepositional phrases</td>
<td>Prepositional objects.</td>
<td></td>
</tr>
<tr>
<td>Adv3</td>
<td>slot for adverbs</td>
<td>The position for certain circumstantial adverbs: time, place and manner.</td>
<td></td>
</tr>
</tbody>
</table>

⁷ The placement of time and place adverbs in this slot is old-fashioned, but was still possible in the 19th century, cp. this quote from Poul Martin Møller: “(...) og Græs og Løv, der dryppede ned i Grøften, duftede dem efter denne Vederquægelse med dobbelt Friskhed imøde.” (‘and grass and leaves that dripped into ditch-the, smelled them after this refreshment with double freshness towards’ - and grass and leaves that were dripping into the ditch, met them after this refreshment with double freshness); Poul M. Møller: *Udvalgte digtninge* [Selected poetical works]. Gyldendal 1901, s. 3.
Similar models have been produced by Jørgensen (2000a, b) and Götzsche (1994, netpublikationer). The Jørgensen models follow the line laid out by Heltoft quite closely, whereas the Götzsche model, now dubbed ‘epi-formal’, uses a quite different notational system.

4. Adding pragmatic criteria

The inclusion of the textual criteria in the model has been suggested many times (Heltoft 1986a, 1986b, 1992 a, 1992b, Jørgensen 2000b, Togeby 1993, 2003). The most prolific figure in this group is undoubtedly Ole Togeby, whose sentence models have been geared to accommodate pragmatic information in a way that renders it compelling to the syntactic structure.

Togeby’s most recent achievement, Fungerer denne sætning (Togeby 2003) presents his development of the sentence model in a two-level form. When first introduced, the model looks almost like a traditional Diderichsen model with new letters instead of some of the old ones:

\[ K || F || v - s - y || W - L | R1 - M - R2|| A \]

A juxtaposition of the two models gives the following picture:

<table>
<thead>
<tr>
<th>Diderichsen</th>
<th>F</th>
<th>v</th>
<th>n</th>
<th>a</th>
<th>V</th>
<th>N</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Togeby</td>
<td>F</td>
<td>v</td>
<td>s</td>
<td>y</td>
<td>W - L</td>
<td>R1</td>
<td>M - R2 - A</td>
</tr>
</tbody>
</table>

The main differences are the following:

1. The slots encompassing nominal phrases have received terms that underline their relational values: n is a subject position and hence s; N is a position for objects, which in Togeby’s terminology are rolleled, ‘rôle phrases’, hence R1 (‘1’ in contrast to valency-bound prepositional phrases and the like that follow under R2).
2. Sentence adverbs are renamed y in order to suit Togeby’s term ytringsadverbialer, ‘utterance adverbs’. Manner adverbs receive a separate slot, like the Heltoft model, namely M.
3. The infinite verb slot is split up into two, W for verbal stems and L for non-verbal stems incorporated into the verbal phrase, like verbal particles, objects without article (spille klaver, ‘play the piano’) and the like. The exact position and the definition of this slot may not be the right one, as suggested by Risom 2005.

Togeby goes on to produce what is no doubt the most complex sentence model in the history of the Diderichsen tradition:
<table>
<thead>
<tr>
<th>K</th>
<th>F</th>
<th>Field of enunciation (‘udsigelsesfelt’)</th>
<th>Field of content (‘omsagnsfelt’)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>v</td>
<td>Havde hun ikke givet ham bogen i går?</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Had she not given him book-the yesterday?</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Man kunne derfor ikke have tillid til ham</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>One could therefore not have confidence in him</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>skønt hun gerne ville være rejst til Paris straks</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>though she rater would have travelled to Paris immediately</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>som hun jo stolede blindt på</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>whom she indeed had-confidence blindly in</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Så kom der en betjent</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Then came there a constable</td>
<td></td>
</tr>
</tbody>
</table>

K = conjoining conjunction; F = fundament (‘first position’), v = finite verb in independent clauses, k = subjunction (only if s is filled out); s = subject; l = unstressed pronouns (only if y is filled out); y = sentence adverb; a = sentence adverb (only if W is filled out with a finite verb); V = Main verb (and possibly non-finite auxiliaries); in dependent clauses also finite verb, W = main verb; L = incorporated nouns or adjectives; R = valency-bound objects; IO = indirect object; DR = direct complement of the verb (object, existential subject, complement); M = manner adverb; MR = prepositional complement; OR = sentential object (also small clauses); A = Time or place adverbs. “/” and “\” indicate that the phrase under the line only occurs if the phrase over the line also does.
Important facets of this model are the attempts to include dependency between slots, a line of thought later developed by Blom (2006). Certain of these dependencies may be questioned empirically, but nevertheless remain interesting as a challenge to closer investigation.

Interesting for our line of thought is the thorough reshaping of the model in order to accommodate pragmatic factors. Togeby identifies the main clause level with the pragmatic level of speech acting and deduces - much in the same way as Heltoft has done (Heltoft ?? om ledsætnings uselvsnædighed). The additional pragmatic factors are built in in many other ways. An important factor in this descriptive model are the adverb positions laid out to cope with the semantic distinctions observed elsewhere by Togeby. Finally he gives an interesting explanation to the sometimes confuse empirical findings concerning the ordering of sentence-final elements; the ordering of such elements is fundamentally determined by their relational character, so that the ordering in the unmarked cases will bring valency-bound elements before unbound elements. In certain cases, then, the placement of focus may interrupt the ordering and place valency-bound elements in final position in order to emphasize their functional character.

In general, the assumption among Danihs functionalis is that the sequence ordering expressed in the sentence model in a very general way reflects what Togeby has called a centaur structure: the foremost (“human”) element contains the elements relating to the communicative situation, whereas the final (“horse”) element contains the elements relating to the content of the utterance, the propositional elements. This point of view may be summarized in a scheme like this:

<table>
<thead>
<tr>
<th>Fundamentfelt</th>
<th>Neksusfelt</th>
<th>Indholdsfelt</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘foundation field’</td>
<td>‘neksus field’</td>
<td>‘content field’</td>
</tr>
<tr>
<td>F</td>
<td>V n a</td>
<td>V N A</td>
</tr>
<tr>
<td>elements connecting up with the context in the discourse</td>
<td>elements relating to the situation of the utterance, its \textit{enunciation}</td>
<td>elements related to the content: the verbal stem and its supplementary elements, the \textit{énoncé}.</td>
</tr>
</tbody>
</table>

This may be seen as some kind of overall structure, replacing specific criteria for each single slot.

\textbf{5. Conclusion}

The circle within the Diderichsen model seems in this way to be complete. From the very onset, the model represents an attempt to produce a complete systematic approach to the syntactic structure of one single language. As we have seen, certain of these elements could not be realised within the original context, mostly because Diderichsen lacked the experience
with certain syntactic facts and the theoretical illumination present today. If you approach it this way, the theory was always meant to accommodate complex facts both about the grammatical structures within the sentence and about the pragmatics factors influencing the syntax. The efforts of the generations following Diderichsen has been to analyse and deepen the understanding of these factors, thereby establishing, as it were, a ‘Diderichsen’ tradition. When Lars Heltoft in 1986 gives one of his papers the subtitle ‘A response from the Diderichsen tradition’ (Heltoft 1986b), he is in a sense referring to an object, the ‘Diderichsen’ tradition, which does exist only through the reflections laid down in the paper he is publishing. In fact, the two Heltoft papers (1986a,b) may be seen as the kick-off for a new current of reflections on the perspectives of the Diderichsen model. Little was done up to then, and since 1986 the amount of papers within the tradition has exploded, most of it supported by the Copenhagen Functionalist Circle.

In this way the Diderichsen is able to function as a descriptive model of Mainland Scandinavian Syntax, also for comparative purposes. The comparison will have to run over a translation of the structures into other means; only Hans Götzche’s EFA(x) model makes direct comparisons with languages with e.g. morphological case systems. However, the prospects of the classical model seem to be convincing enough to justify continuation of the use.

References


Diderichsen, Paul (1941): *Sætningsbygningen i skaanske Lov.* København: Ejnar Munksgaard

Diderichsen, Paul (1946 (1962)): *Elementær dansk Grammatik.* København: Gyldendal.

Engerer, Volkmar (forth.): “Faseverbernes syntaks og semantik i dansk”. To appear in MUDS 11, Univ. of Aarhus.


Hansen, Aage (1933): *Sætningen og dens Led*. København: Munksgaard


Rasmussen, Birgitte Skovby (forth.): ‘‘’Temperaturen kommer til at ligge mellem 5 og 7 grader.’ Hvornår bruges ‘komme til at’ med fremtidsbetydning?’ To appear in MUDS 11, Univ. of Aarhus.


