Topic and focus in local subject extractions in Danish

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Abstract

The present paper proposes an analysis of the asymmetrical distribution of *der*, 'there', in embedded interrogative and relative clauses, respectively, in standard Danish. The analysis sets itself apart from previous analyses in integrating information structural constraints. We will show that the discourse function of the extracted subject in the clauses in question determines whether *der* insertion takes place in standard Danish. The analysis will further be shown to support the position that *der* in interrogative and relative clauses is an expletive subject filler, and that from an information structural point of view, the *der* in existential, presentational, passives and relative clauses is indeed the same *der*.

1 Introduction

In standard Danish the word *der*, 'there', is used in embedded subject interrogative clauses, but not in subject relative clauses. The different distribution in interrogatives and relatives is shown in (1).

(1) a. Jeg ved hvem der vandt.
I know who there won
'I know who won.'

b. Da jeg var i tvivl ringede jeg til dem, og spurgte hvilken der
as I was in doubt called I to them and asked which there
passede til min bil.
suited to my car
'As I was in doubt I called them and asked which one suited my car.'

c. Jeg kender manden hvis bror __ vandt.
I know man.DEF whose brother won
'I know the man whose brother won.'

d. Vi skulle dykke ud for Mactan Island, hvilken __ ligger lige over
we should dive out for Mactan Island which lies right over
for Cebu City.
for Cebu City
'We were going to dive off Mactan Island which lies right opposite Cebu City.'

If no relative pronoun is present, we also find *der* in relative clauses, as the examples in (2) show.

(2) a. Manden der vidste for meget
man.DEF there knew too much
'The man who knew too much'

†We want to thank the participants of the HPSG2011 conference for valuable discussion. Special thanks go to Stefan Müller for his detailed comments.

b. Bogen der ligger til grund for filmen er en klassiker.
book.DEF there lies to ground.DEF for movie.DEF is a classic
'The book which the movie is based on is a classic.'

Traditionally, cf. Wiwel (1901), Diderichsen (1957) and Hansen (1974), the *der* in (1) and (2) is assumed to be the same *der* that occurs in e.g. existential, presentational and impersonal passive clauses, as in (3), where it functions as an expletive subject filler when a subject does not appear in subject position or is missing altogether.

(3) a. Han siger, at der er elefanter i alle størrelser.
he says that there are elephants in all sizes
'He says that elephants exist in all sizes.'

b. Han siger, at der løber en blå smølf efter mig.
he says that there runs a blue smurf after me
'He says that a blue murf is running after me.'

c. Han siger, at der synges i parallelle kvinter.
he says that there sing.PRS.PASS in parallel fifths
'He says that people are singing in parallel fifths.'

In more recent Danish generative literature on *der*, this assumption has been challenged, and it has been discussed whether *der* in embedded interrogative and relative clauses is indeed an expletive occuring in subject position, cf. the analyses in Erteschik-Shir (1984), Vikner (1991) and Mikkelsen (2002). Arguments have been put forward suggesting that *der* in embedded subject interrogatives and relatives differs wrt. a number of syntactic phenomena from the expletive *der*, so much so that it cannot be maintained to be categorized as the expletive *der*. The inconsistent distribution of *der* in standard Danish embedded clauses has, however, not been a focus of attention. Outside the Danish literature, e.g. Engdahl (1984) has proposed that the asymmetrical distribution of *der* is a consequence of interrogative and relative clauses having different clause structural properties.

The present paper addresses the inconsistent distribution of *der* shown in (1) and (2). The proposed analysis is based on different information structural properties of the clauses. Apart from explaining the distribution in (1) and (2), incorporating information structure in the analysis provides a uniform account of *der* in Danish, and hence simultaneously lends support to the argument that *der* in embedded interogatives and relatives is indeed an expletive subject filler in subject position.

2 The data

In this section we will be more specific about what types of relative clauses are discussed in this paper. The relative clauses dealt with here are bound subject

relative clauses. Some of them involve extractions. There are potentially three such cases in Danish, as shown in (4).

(4) a. Husker I historien om drengen hvis mor __ ville
remember you story.DEF about boy.DEF whose mother wanted
stave hans navn Christophpher?
spell his name Christophpher
'Do you remember the story about the boy whose mother wanted to spell his name Christophpher?'

b. Aspasim ligger i en by kaldet Vallvidrera, hvilken __ ligger oppe
Aspasim lies in a town called Vallvidrera which lies up
i bjergene lidt udenfor Barcelona.
in mountains.DEF little outside Barcelona
'Aspasim lies in a town called Vallvidrera which is situated in the mountains a little outside Barcelona.'

c. * Jeg har en ven, hvem __ bor i Barcelona.
I have a friend who lives in Barcelona
'I have a friend who lives in Barcelona.'

In (4a) we have a bound subject relative clause involving pied piping, the relative pronoun *hvis* is the specifier of a larger noun phrase with which it is extracted from subject position. In (4b) the relative pronoun *hvilken*, used to refer to a non-human, is extracted from subject position. Finally, in (4c) the relative pronoun *hvem*, used to refer to a human, is extracted from subject position. (4c), however, is not well-formed in Danish, cf. e.g. Hansen (1974).

In addition, we have subject relative clauses without relative pronouns, as in (2). More example are provided in (5).

(5) a. Pigen der legede med ilden
girl.DEF there played with fire.DEF
'The girl who played with fire'

b. Hønsine og himlen der faldt ned
Hønsine and sky.DEF there fell down
'Hønsine and the sky that fell down'

We follow Erteschik-Shir (1984) and Mikkelsen (2002) in treating *der* as an expletive. This means that they are not treated as relative pronouns, as in textbook grammars like e.g. Allan et al. (1996). We therefore do not analyze these as involving extraction.

It should be noted that the examples in (6) are not subject relative clauses, and they do consequently not constitute contradictions to our observations about *der* in relative clauses.

(6) a. Stephen King er en forfatter, hvis bøger der kan koges
Stephen King is a writer whose books there can boil.PRS.PASS
meget suppe på.
much soup on
'Stephen King is a writer whose books cannot be flogged to death.'

b. Herefter følger I vejen, langs hvilken der vokser cypresser.
hereafter follow you road.DEF along which there grow cypresses
'From then on you follow the road along which cypresses grow.'

In (6a) *der* is inserted in an embedded passive missing a subject, and in (6b) *der* is inserted in an embedded presentational there clause where the "subject" appears in direct object position.

The data we have presented so far are standard Danish. Hansen (1974) gives an account of *der* insertion in non-standard Danish. He observes that here we also find *der* in examples like (7).

(7) a. ? Bogen handler om en dreng der hedder Mikkel, hvis
book.DEF is about a boy there calls Mikkel whose
mor der døde da han var 13 år gammel.
mother there died when he was 13 years old
'The book is about a boy called Mikkel whose mother died when he was 13 years old.'

b. ? Jeg slap for flere konfrontationer, hvilke der måtte ende
I escaped for more confrontations which there must.PST end
voldeligt ligegyldigt hvordan de blev vendt og drejet.
violently no matter how they were tossed and turned
'I avoided more confrontations which were bound to end violently whichever way you looked at them.'

We cannot do justice to the data in Hansen (1974) in this paper, but can conclude that in standard Danish *der* is inserted in embedded subject interrogatives, but not in bound subject relative clauses. In non-standard Danish dialects *der* is inserted as a subject filler with varying degrees of acceptability in different clause types, including subject relative clauses. In this paper we are concerned with the distribution of *der* in standard Danish. The non-standard distributions, however, will be shown to follow from exempting non-standard Danish from constraints to be presented in Section 5 governing the standard distribution.

3 Theoretical background

As stated in Section 1, the present paper proposes an analysis based on information structural properties of the clauses, allowing for a uniform analysis of *der* as an expletive subject filler in subject position. This is in answer to the following

theoretical questions arising when dealing with the data at hand. Do we explain the "inconsistent" distribution of *der* in Danish embedded interrogative and relative clauses as a result of asymmetrical syntactic structures or something else? And can we provide a uniform analysis of *der* as a subject expletive in both interrogatives, relatives and other *der*-constructions?

Engdahl (1984) explains the ill-formedness of subject extractions out of relative clauses in constrast to interrogative clauses in Norwegian as being a result of the empty category in subject position not being properly governed within its governing category $\overline{\text{S}}$. This is shown in (8).

(8) a. Ola$_i$ skjønner jeg ikke [$_{\overline{\text{S}}}$ [$_{XP}$ hva$_j$] [$_{\overline{\text{S}}}$ [$_{Comp}$ e_i] [$_S$ e_i sier e_j]]]]
Ola understand I not what says

b. * Ola$_i$ kjenner jeg [$_{NP}$ mange [$_{\overline{\text{S}}}$ [$_{Comp}$ som$_j$] [$_S$ e_i liker e_j]]]
Ola know I many that like

The analysis is based on assigning interrogative and relative clauses different syntactic structures. Interrogative clauses have an extra XP position, as can be seen in (8a). (8a) is well-formed because the empty category e_i in S is properly governed by e_i in $\overline{\text{S}}$. In (8b), on the other hand, the empty category e_i in S is not properly governed within $\overline{\text{S}}$.

Engdahl (1984) refers to the non-occurrence of Norwegian *som* in relative clauses as independent support for the asymmetrical clause structures. She further proposes that Danish *der* can be a proper governor in Danish like the Norwegian *som*. This means that we get the structures in (9a) for Danish.

(9) a. Jeg husker ikke [$_{\overline{\text{S}}}$ [$_{XP}$ hvis hest$_i$][$_{\overline{\text{S}}}$ [$_{Comp}$ der$_i$] [$_S$ e_i vandt
I remember not whose horse there won
løbet]]]
the race

b. Jeg kender [$_{NP}$ manden [$_{\overline{\text{S}}}$ [$_{Comp}$ hvis hest]$_i$ [$_S$ e_i vandt løbet]]]
I know the man whose horse won the race

In (9b) *hvis hest* appears in Comp. There can only be one element in Comp in this analysis. As there is no XP position in the relative clause, there is no room for *der*, as Comp is already occupied. In this way the asymmetry between interrogative and relative clauses is explained.

Apart from the fact that we must accept phrases in Comp, the analysis is problematic for Danish. In non-standard Danish, cf. also Bjerre (2010), we find the complementizer *som* in front of pied piping phrases as in (10), both contending for the Comp position.

(10) a. ? Har nemlig en veninde som hvis hund løb væk i november
have you see a friend Comp whose dog ran away in November
'I have, you see, a friend whose dog ran away in November.'

b. ? 3 dejlige sorte hanner som hvis far og mor begge
3 lovely black male dogs Comp whose father and mother both
er en blanding af en border collie og labrador
are a mix of a border collie and labrador
'3 lovely black male dogs whose father and mother both are a cross between a border collie and labrador.'

Similarly, in the example in (7) repeated here as (11), we find the extracted phrases and *der* contending for the Comp position.

(11) a. ? Bogen handler om en dreng der hedder Mikkel, hvis
book.DEF is about a boy there calls Mikkel whose
mor der døde da han var 13 år gammel.
mother there died when he was 13 years old
'The book is about a boy called Mikkel whose mother died when he was 13 years old.'

b. ? Jeg slap for flere konfrontationer, hvilke der måtte ende
I escaped for more confrontations which there must.PST end
voldeligt ligegyldigt hvordan de blev vendt og drejet.
violently no matter how they were tossed and turned
'I avoided more confrontations which were bound to end violently whichever way you looked at them.'

And finally, in (12) we find *som* and *der* contending for the Comp position.

(12) a. ? Jeg vil godt vide hvem som der lægger stemmer til
I will good know who Comp there lays voices to
Mumitroldene i tegnefilmserien.
Mumins.DEF in cartoon series.DEF
'I would like to know who provides voices for the Mumins in the cartoon series.'

b. ? Min smukke dejlige pony som der er solgt til Sofia
my beautiful lovely pony Comp there is sold to Sofia
'My beautiful lovely pony which is sold to Sofia.'

As mentioned earlier, previous Danish analyses of *der* in interrogative and relative clauses have focused on the categorial status of *der*. Erteschik-Shir (1984) assumes that *der* is an expletive subject, and restricts the insertion of *der* to contexts where "co-superscripting", or agreement, can occur with an adjacent operator. This is shown in (13).

(13) a. Jeg ved ikke hvem^{i} der^{i} kan lide ham.
I know not who there can like him
'I do not know who likes him.'

b. ? Manden hvis hest^i der^i vandt løbet
man.DEF whose horse there won race.DEF
'The man whose horse won the race.'

In (13) *hvem* and *hvis hest* are adjacent operators licensing *der* insertion.[1]

In the analysis of Vikner (1991) *der* is assumed to occur in C^0 position, rather than being an expletive. On this analysis *der* may only occur if the specifier of its complement is coindexed with its own specifier in which case it may properly govern the specifier of its complement. The examples in (14) illustrate.

(14) a. Jeg ved [$_{CP}$ hvis hund$_i$ der$_i$ [$_{IP}$ t$_i$ spiser æbler]]
I know whose dog there eats apples

b. ? Jeg kender en pige [$_{CP}$ hvis hund$_i$ der$_i$ [$_{IP}$ t$_i$ spiser æbler]]
I know a girl whose dog there eats apples

In these examples the operator moves from IP-spec to CP-spec, and leaves a trace in IP-spec and *der* is inserted in C^0. *Der*'s complement is the IP, and *der*'s specifier is the operator in CP-spec. The examples are well-formed, as the specifier of *der*'s complement is coindexed with *der*'s own specifier.

Mikkelsen (2002) argues that the distribution of *der* is a result of its expletive status. *Der* is inserted in the position targeted by the Extended Projection Principle, cf. Chomsky (1981). According to Mikkelsen (2002), the Extended Projection Principle can be satisfied in two ways. If the subject moves to CP-spec via IP-spec, it leaves a trace in IP-spec, and no expletive *der* is inserted. Only if the moved element is overt may its trace in IP-spec satisfy the Extended Projection Principle. If the subject moves directly from its thematic position to CP-spec, *der* is inserted in IP-spec to satisfy the Extended Projection Principle. The examples in (15) illustrate.

(15) a. Jeg kender en pige$_i$, [$_{CP}$ [hvis$_i$ hund]$_j$ [$_{IP}$ t$_j$ [$_{VP}$ t$_j$ har spist
I know a girl whose dog has eaten
æblet]]]
the apple

b. Jeg kender en pige$_i$, [$_{CP}$ [hvis$_i$ hund]$_j$ [$_{IP}$ der [$_{VP}$ t$_j$ har spist
I know a girl whose dog there has eaten
æblet]]]
the apple

In (15a) the operator moves via IP-spec and leaves a trace that satisfies the EPP. In (15b) the operator moves directly from its position in VP and the expletive *der* is inserted to satisfy the EPP.

Even though there is disagreement as to the category of *der*, there is agreement that the main obstacles to a syntactically uniform analysis are the definiteness and

[1] Erteschik-Shir (1984, p. 134) mentions that topics do not license *der* insertion, however this aside observation is not incorporated into her proposed analysis.

transitivity restrictions that are observed for *der*.[2] Mikkelsen (2002) gives the examples in (16) and (17) which show that the definiteness restrictions applying to expletive *der* do not apply to *der* in relative clauses.

(16) Vi ved at ...
We know that

a. der vil komme mange lingvister.
there will come many linguists

b. * der vil komme de lingvister.
there will come the linguists

(17) Vi kender ...
We know

a. mange lingvister der vil komme *t*.
many linguists there will come

b. de lingvister der vil komme *t*.
the linguists there will come

And Vikner (1991) gives the examples in (18) which show that the transitivity restrictions applying to expletive *der* do not apply to *der* in relative and interrogative clauses.

(18) a. * Vi ved at der vil mange lingvister læse denne bog.
We know that there will many linguists read this book

b. Vi kender de lingvister der vil læse denne bog.
We know the linguists there will read this book

c. Vi ved ikke hvilke lingvister der vil læse denne bog.
We know not which linguists there will read this book

In spite of their differences concerning the categorial status of *der*, the analyses have in common that they do not explain why *der* does not occur in standard Danish subject relative clauses. In contrast to e.g. Engdahl (1984) they assume that relative clauses have the same clausal structure as embedded interrogative clauses. In Section 4 we will show that the asymmetry may be explained in terms of information structural rather than clause structural differences.

4 Analysis

Bresnan and Mchombo (1987) argue that to provide a natural analysis of the agreement system of Chichewa, both syntactic and discourse functions have to be taken into account. In their paper they establish three principles about the role of the topic

[2] The present analysis explains these differences in terms of different constructional constraints.

and focus functions in the grammars of natural language, based also on evidense from Kuno (1976) and Dik (1978). We will use these principles as the basis of our analysis and refer to the functions of topic and focus to explain the inconsistent distribution of *der* in standard Danish embedded clauses. At the same time we will argue that when integrating an account of discourse functions, a uniform account of *der* in Danish as an expletive subject filler in subject position can be maintained.

According to Bresnan and Mchombo (1987), in relative clauses the relative pronoun universally bears the topic function. In interrogative clauses the interrogative pronoun universally bears the focus function. And, finally, the same constituent cannot be both focus and topic of the same level of clause structure.

The examples in (19) show these principles exemplified in Danish, clefting being a test for focus.

(19) a. Som komponist er det naturligvis vigtigt, at lytterne
as composer is it of course important that listeners.DEF
ved, hvem det er der har skrevet den musik, de lytter til.
know who it is there has written that music they listen to
'As a composer it is of course important that the listeners know who it is that has written the music they are listening to.'

b. ??? Som komponist er det naturligvis vigtigt, at lytterne
as composer is it of course important that listeners.DEF
kender den musik hvilken det er der lyttes til.
know that music which it is there listen.PRS.PAS to
'As a composer it is of course important that the listeners know that music which it is that is listened to.'

The example in (19a) where the interrogative pronoun is clefted is fine whereas the example in (19b) where the relative pronoun is clefted is questionable. The discourse functions of the extracted pronouns in the embedded clauses from (1) are shown in (20).

(20) a. Jeg ved hvem$_{focus}$ der vandt.
I know who there won
'I know who won.'

b. Da jeg var i tvivl ringede jeg til dem, og spurgte hvilken$_{focus}$
as I was in doubt called I to them and asked which
der passede til min bil.
there suited to my car
'As I was in doubt I called them and asked which one suited my car.'

c. Jeg kender manden hvis$_{topic}$ bror __ vandt.
I know man.DEF whose brother won
'I know the man whose brother won.'

d. Vi skulle dykke ud for Mactan Island, hvilken$_{topic}$ -- ligger lige
we should dive out for Mactan Island which lies right
over for Cebu City.
over for Cebu City
'We were going to dive off Mactan Island which lies right opposite Cebu City.'

We propose that the discourse function of the extracted pronoun determines whether expletive *der* is inserted in subject position. If the subject has "moved" to receive focus, expletive *der* is inserted in subject position.

This also accounts for the occurrence of *der* in hypothetical sentences like (21).

(21) a. Hvem der var barn i dag!
who there was child today
'If only I were a child today!'

b. Hvem der bare var studerende i dag!
who there only was student today
'if only I were a student today!'

The hypothetical sentences are formally interrogatives and have embedded clause structure, consequently the pronoun "moves" to a focus position and *der* is inserted.

The account of *der* insertion in embedded interrogative and relative clauses extend to include *der* insertion in impersonal passives, existential and presentational clauses. So, in general, if a clause which requires a subject is missing one, or if the subject has moved to receive focus, then expletive *der* is inserted. These rules explain *der* insertion in all the examples in (22).

(22) a. Han siger, at der synges i parallelle kvinter.
he says that there sing.PRS.PASS in parallel fifths
'he says that people are singing in parallel fifths.'

b. Manden der vidste for meget
man.DEF there knew too much
'The man who knew too much'

c. Han siger, at der er elefanter$_{focus}$ i alle størrelser.
he says that there are elephants in all sizes
'He says that elephants exist in all sizes.'

d. Han siger, at der løber (en blå smølf)$_{focus}$ efter mig.
he says that there runs a blue smurf after me
'He says that a blue murf is running after me.'

e. Jeg ved hvem$_{focus}$ der vandt.
I know who there won
'I know who won.'

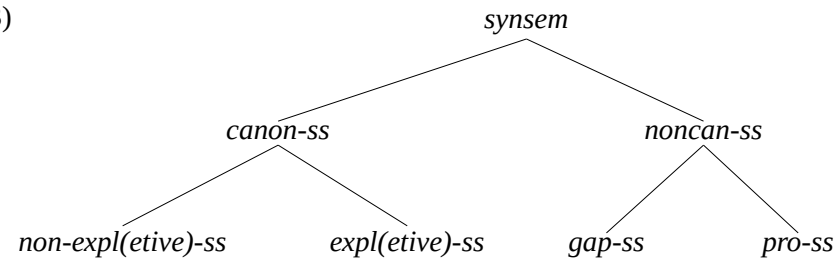
In (22a) the subject is missing in an impersonal passive and *der* is inserted. In (22b) the subject is again missing because there is no relative pronoun in the relative clause and *der* is inserted. In the embedded existential clause in (22c), the subject appears post-verbally to receive focus, and in the embedded presentational clause in (22d), the subject has likewise "moved" to receive focus, to the direct object position[3], and *der* is inserted. Finally, in (22e) the subject has "moved" to receive focus in the embedded interogative clause. Our analysis, then, lends support to the argument that *der* in embedded interogatives and relatives is indeed an expletive subject filler in subject position.

5 Formalization

The formalization of our analysis is based on the account of extraction in Ginzburg and Sag (2000). In this account a non-empty SLASH feature is introduced by the Argument Realization Principle (Ginzburg and Sag, 2000, p. 171) and the SLASH-Amalgamation Constraint (Ginzburg and Sag, 2000, p. 169). The Argument Realization Principle may introduce a "gap" on the ARG-ST list of a word, at the same time not mapping *synsem*s that have been resolved to *gap-ss* to the COMPS list of a word. The SLASH-Amalgamation Constraint ensures that the SLASH values of the arguments of a word are passed up to the word itself. The inheritance of the SLASH value in constructions is effected by the Generalized Head Feature Principle (Ginzburg and Sag, 2000, p. 33), which specifies inter alia the inheritance of the SLASH feature from the head-daughter to the mother in a construction. Finally, various contructions are responsible for binding off the SLASH value, either constructions involving a filler daughter or unary constructions where a construction type is responsible for binding off the "gap". Our formalization of information structural properties is an addition to and modification of the analysis of extraction in Danish presented in Bjerre (2010) and Bjerre (2011). We will repeat the main ideas here.

To account for the Danish *der* insertion phenomenon in subject extraction contexts, we introduce an additional *synsem* type. The extended *synsem* hierarchy[4] is shown in (23).

(23)



[3]Cf. Platzack (1983), Askedal (1986), Lødrup (2000) and Bjerre and Bjerre (2008)

[4]The hierarchy presented here is a modification of the hierarchy in Bjerre (2010) and Bjerre (2011).

The Expletive *der* has an *expl-ss* which is introduced as a subtype of *canon-ss*, and it is consequently governed by the Principle of Canonicality (Ginzburg and Sag, 2000) which ensures that *sign*s are canonical, i.e. have overt expression.

In (24) the constraint for *expl-ss* is shown.

(24) $$\textit{expl-ss} \Longrightarrow \begin{bmatrix} \text{LOC}\begin{bmatrix}\text{CAT} \mid \text{HEAD } \textit{expl} \\ \text{CONT } \boxed{1}\end{bmatrix} \\ \text{SLASH}\left\{\left[\text{CONT } \boxed{1}\right]\right\} \end{bmatrix}$$

An expletive structure-shares its CONTENT value with the constituent it replaces.

In Danish, the Argument Realization Principle additionally does not map *synsem*s that have been resolved to *gap-ss* to the SUBJ list of the word. However, the subject is visible as the value of the SUBJECT feature.[5] The Danish Argument Realization Principle is shown in (25).

(25) Argument Realization Principle (Danish):

$$\textit{word} \Longrightarrow \begin{bmatrix} \text{SS} \mid \text{LOC} \mid \text{CAT}\begin{bmatrix}\text{HEAD} \mid \text{SUBJECT } \boxed{A} \\ \text{SUBJ } \boxed{A} \ominus \textit{list(gap-ss)} \\ \text{SPR } \boxed{B} \\ \text{COMPS } \boxed{C} \ominus \textit{list(gap-ss)}\end{bmatrix} \\ \text{ARG-ST } \boxed{A} \oplus \boxed{B} \oplus \boxed{C} \end{bmatrix}$$

The Argument Realization Principle results in different representations for the verb *synger*, 'sings', in (26).

(26) a. Jeg kender kvinden hvis søn __ synger.
I know woman.DEF whose son sings
'I know the woman whose son is singing.'

b. Jeg ved hvem der synger.
I know who there sings
'I know who is singing.'

The verb *synger* in (26a) corresponds to (27).

(27) $$\begin{bmatrix} \textit{word} \\ \text{SS} \mid \text{LOC} \mid \text{CAT}\begin{bmatrix}\text{HEAD} \mid \text{SUBJECT } \boxed{A} \\ \text{SUBJ } \langle\rangle \\ \text{COMPS } \boxed{B}\end{bmatrix} \\ \text{ARG-ST } \boxed{A}\left\langle \textit{gap-ss} \right\rangle \oplus \boxed{B} \end{bmatrix}$$

[5] Cf. Meurers (1999) for further arguments that we need a SUBJECT feature as part of the HEAD feature.

However, the *synger* in (26b) with an expletive subject corresponds to (28).

(28)
$$\left[\begin{array}{l} \textit{word} \\ \text{SS} \mid \text{LOC} \mid \text{CAT} \left[\begin{array}{l} \text{HEAD} \mid \text{SUBJECT} \boxed{A} \\ \text{SUBJ} \boxed{A} \\ \text{COMPS} \boxed{B} \end{array}\right] \\ \text{ARG-ST} \boxed{A} \left\langle \textit{expl-ss} \right\rangle \oplus \boxed{B} \end{array}\right]$$

As can be seen, subject gapped words have an empty SUBJ list. This is in contrast to Ginzburg and Sag (2000), where a *gap-ss* remains on the SUBJ list. In this way we can account for the potential realization of an expletive in subject position in Danish. If the subject is resolved to an *expl-ss*, it remains on the SUBJ list to be cancelled off in the *hd-subj-ph*.

As argued in Bjerre (2010) and Müller and Ørsnes (2011), *der* insertion in standard Danish clauses involving extractions is constrained to local extractions. We therefore, in addition to the default SLASH-Amalgamation Constraint, propose the *Expletive* SLASH Constraint in (29), cf. also (Bjerre, 2010) and (Bjerre, 2011).

(29) *Expletive* SLASH Constraint:

$$\neg \left[\begin{array}{l} \textit{word} \\ \text{ARG-ST} \left\langle \left[\begin{array}{l} \text{L} \mid \text{C} \mid \text{H} \mid \text{S} \left\langle \textit{expl-ss}_i \right\rangle \\ \text{SLASH} \left\{ \left[\text{CONT} \mid \text{INDEX } i \right] \right\} \uplus \boxed{\Sigma} \end{array}\right], \ldots \right\rangle \end{array}\right]$$

The constraint in (29) makes sure that *der* insertion only takes place if we have a local subject extraction. The constraint excludes words which contain an element on the ARG-ST list with an expletive subject corresponding to an element in the SLASH set, i.e. an element which has not already been bound off. This means that a SLASH value originating from an expletive can only be bound off locally. The *Expletive* SLASH Constraint applies in standard Danish.

The information structure part of our formalization is based on Paggio (2009), but cf. Engdahl and Vallduví (1996), Vallduví and Engdahl (1996), Kuthy (2002) and Kuthy and Meurers (2003) for analyses of information structure in e.g. English and German. We adopt the feature INFOSTR from Paggio (2009) to encode the grammaticalized discourse functions of interrogative and relative pronouns. The feature INFOSTR is part of the CONTEXT and it has the features TOPIC and FOCUS, each taking as its value a list of semantic indices. As stated in Section 4, *der* insertion indicates that the subject appears in extracted position to receive focus. In our analysis the occurrence of an expletive subject in the subject "gap" position is licensed by the occurrence of a subject filler marked for focus. In (30) we show the constraint licensing *der* in finite-*wh*-subject-interrogative clauses.

(30) *fin-wh-su-int-cl*:

$$\begin{bmatrix} \quad \end{bmatrix} \longrightarrow \begin{bmatrix} \text{SS} \mid \text{WH} \left\{ \begin{bmatrix} \textit{param} \\ \text{IND } \boxed{1} \end{bmatrix} \right\} \\ \text{CTXT} \mid \text{IS} \begin{bmatrix} \text{FOC} \left\langle \boxed{1} \right\rangle \end{bmatrix} \end{bmatrix}, \mathbf{H} \begin{bmatrix} \text{SS} \mid \text{L} \mid \text{C} \mid \text{H} \mid \text{SUBJECT} \left\langle \textit{expl-ss} \right\rangle \end{bmatrix}$$

Interrogative pronouns lexically have a non-empty FOCUS list. The constraint ensures that the subject of the head daughter is an expletive, not a gap.

Topic subject fillers do not license *der*, as shown in the constraint on finite-*wh*-subject-relative clauses in (31).

(31) *fin-wh-su-rel-cl*:

$$\begin{bmatrix} \quad \end{bmatrix} \longrightarrow \begin{bmatrix} \text{SS} \mid \text{REL} \left\{ \begin{bmatrix} \textit{param} \\ \text{IND } \boxed{1} \end{bmatrix} \right\} \\ \text{CTXT} \mid \text{IS} \begin{bmatrix} \text{TOP} \left\langle \boxed{1} \right\rangle \end{bmatrix} \end{bmatrix}, \mathbf{H} \begin{bmatrix} \text{SS} \mid \text{L} \mid \text{C} \mid \text{H} \mid \text{SUBJECT} \left\langle \textit{gap-ss} \right\rangle \end{bmatrix}$$

Relative pronouns lexically have a non-empty TOPIC list. The constraint ensures that the subject of the head daughter is a gap, not an expletive.

To account for the distribution of *der* in non-standard Danish relative clauses, we simply propose that the constraints on *fin-wh-su-rel-cl* in (31) do not apply. This means that either an *expl-ss* subject or a *gap-ss* subject may occur.

6 *Der* as a resumptive pronoun

In the present paper it has been shown that standard and non-standard Danish differ wrt. *der* insertion in embedded clauses involving local extractions. This difference is also evident in non-local extractions. In non-local extractions, called "sætningsknuder", 'sentence knots', in Danish, *der* is not inserted, as shown in (32).

(32) a. Jeg ville gerne vide hvem han troede __ vandt touren.
I would good know whom he thought won tour.DEF
'I would like to know whom he thought won the tour.'

b. Hold uden et indre sammenhold og "social ro" tror
teams without an internal solidarity and social stability believe
jeg ikke __ vinder særlig ofte.
I not win very often
'Teams without an internal solidarity and social stability I don't think will win very often.'

c. Tid til at ruste os til det næste opsving, som ingen ved
time to to prepare us for the next upturn Comp no one knows
hvornår __ kommer.
when comes
'It's time to prepare ourselves for the next upturn which no one knows when will come.'

The insertion of *der* in relative clauses involving local extractions in non-standard Danish is parallelled in non-local extractions, with varying degrees of acceptability, as shown in (33).[6]

(33) a. ? Et par af mine elever spurgte mig for et par dage siden,
a couple of my pupils asked me for a couple days ago
hvem jeg troede der ville vinde valget.
whom I believed there would win election.DEF
'Some of my pupils asked me a couple of days ago whom I believed would win the election.'

b. ? Lyngby tror jeg ikke, der vinder over OB.
Lyngby believe I not there beats over OB
'Lyngby I don't believe will beat OB.'

c. ? Jeg traf en fyr som jeg bare ikke kan huske hvor der
I met a guy Comp I just not can remember where there
boede.
lived
'I met a guy whom I just can't remember where lived.'

The use of resumptive pronouns in Danish is limited, and in contexts where resumptive pronouns are accepted by some Danes, we generally do not accept *der*, cf. Vikner (1991). This said, Hansen (1974) concludes that "*Der*-indsætning er en meget sen transformation, som koldblodigt udfylder enhver tom subjektsplads i sætningsknuder (...) Tendensen minder slående om *der*-indsætning i relativkonstruktion."[7] The development seems to be towards *der* functioning as a resumptive subject pronoun in Danish non-local extractions, and it seems that the development in subject relative clauses resembles this development and does not constitute an argument against the analysis of *der* as a "focus marker" presented in this paper.

7 Conclusion

In this paper an analysis of the distribution of *der* in embedded interrogative and relative clauses in standard Danish was proposed. The analysis sets itself apart

[6](33c) is from Hansen (1974).

[7]*Der* insertion is a very late transformation which cold-bloodedly fills every empty subject position in sentence knots (...). The tendency strikingly resembles *der* insertion in the relative construction.

from previous analyses in integrating information structural constraints. We have shown that the grammaticalized discourse function of the extracted subject in the clauses in question determines whether *der* insertion takes place in standard Danish. When the subject is extracted to receive focus, *der* is inserted. We have shown that in non-standard Danish *der* may be inserted in pied piping subject relative clauses as well, and that the constraints on *fin-wh-su-rel-cl* in (31) do not apply, suggesting that in Danish the development seems to be towards *der* functioning as a resumptive subject pronoun. We further believe that the proposed analysis lends support to the position that *der* in interrogatives and relatives is an expletive subject filler. In passives missing a subject and in subject relative clauses missing a relative pronoun, *der* is inserted. In embedded interrogtive, passive, existential and presentational clauses where the subject is "moved" to receive focus, either to the front position or to the direct object position, *der* is inserted. This means that from an information structural point of view, the *der* in existential, presentational, embedded interrogatives and relative clauses is indeed the same *der*.

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