

Expletive subjects in subject relative clauses

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1 Introduction

The goal of this paper is to provide an analysis of subject relative clauses in Danish that maximizes coherence with other constructions in the language, in particular impersonal constructions, while making restrictive assumptions about phrase structure and minimal appeal to lexical specification. The data I will be concerned with is exemplified in (1), which is borrowed from Vikner (1991, 109):

- (1) Vi kender de lingvister **som at der** vil læse denne bog.
We know the linguists who that there will read this book.
‘We know the linguists who will read this book’

The focus will be on the three elements *som*, *at* and *der*, which appear between the external nominal head and the finite verb of the relative clause. For convenience I’ll refer to this domain as the left periphery of the relative clause. The left-periphery of a subject relative clause may be realized by certain combinations of *som*, *at*, *der*, while other combinations are impossible. Characterizing the possible realizations is a challenge to syntactic theory, and there have been several proposals in the generative literature including Jacobsen and Jensen (1982), Erteschik-Shir (1984), and Vikner (1991). The discussion has centered on the categorial status of each of the three words *som*, *at*, *der*, and this will also play a crucial role in the analysis developed below. Jacobsen and Jensen (1982), working within the framework of Chomsky (1977) and Chomsky and Lasnik (1977), claim that *som* is a *wh*-word, while *at der* is a “two-word complementizer with no internal structure”, (Jacobsen and Jensen, 1982, p. 8). Erteschik-Shir (1984), working within the Government and Binding framework of Chomsky (1982), argues that *som* and *at* are complementizers, while *der* is an expletive functioning as a subject filler. The restrictions on the possible combinations of *som at* and *der* are derived from conditions on operator adjacency, co-superscripting, proper government and the ECP. Finally, Vikner (1991), working within the Relativized Minimality framework of Rizzi (1990), argues that each of the three elements is a lexical complementizer, each projecting a CP. The distribution and internal ordering of *som*, *at* and *der* is argued to follow from idiosyncratic, lexical properties of each of the three heads.

In this paper I combine insights from each of these analyses and propose an analysis that maximizes coherence with the analysis of impersonal constructions, while maintaining a restrictive theory of clause structure. The strategy is to locate the simplest possible assumptions about the categorial status of each of the three elements *som*, *at* and *der*, that are compatible with this restrictive theory of clause structure, and see how much of the data can be accounted for without introducing any additional descriptive technology. The analysis makes minimal appeal to lexical specification, and no appeal to government or adjacency.

The proposal is in outline that *som* is an invariant operator – an overt counterpart to the invariant null operators frequently postulated in analyses of A-bar movement, *at* a complementizer and *der* an expletive element. Under this proposal the subject relative clause in (1) receives the analysis shown in (2):

- (2) ... [DP de lingvister [CP **som_i at** [IP **der** I⁰ [VP t_i vil læse denne bog]]]]

where *som* occupies [Spec, CP], *at* is in the head position of CP, and the expletive *der* is in [Spec,IP].¹

¹Taraldsen (1991, 99-107) also argues, contra Taraldsen (1986), that *der* is an expletive occurring in [Spec, IP] in relative clauses.

The analysis accounts for the distribution of *som*, *at* and *der* in relative clauses, as well as the realization of the left-periphery of subject relative clauses. In addition to these descriptive advantages the analysis opens up the possibility of a unified analysis of relative clauses and impersonal (or expletive) constructions, avoiding the lexical ambiguity of *der* stipulated in Jacobsen and Jensen (1982) and Vikner (1991). The main obstacle to a unified analysis of expletive and relative *der* is that expletive constructions and relative clauses differ with respect to definiteness and transitivity restrictions. Without attempting a complete analysis of these differences, I show how they are consistent with a broader set of observations about definiteness effects in relative clauses and Case satisfaction under A-bar movement.

The paper is organized as follows. Section 1.1 outlines the basic claims of the analysis and the facts to be accounted for. In section 2 I show how the analysis accounts for the distribution of *som*, *at*, and *der* in relative clauses. In section 3 I turn to a more detailed examination of subject relative clauses and show how the EPP plays a decisive role in the realization of their left periphery. In section 4 I consider the possibility of a unified analysis of relative clauses and expletive constructions, and discuss some advantages and challenges to a unified analysis. Finally, section 5 summarizes the paper.

1.1 Basic facts and assumptions

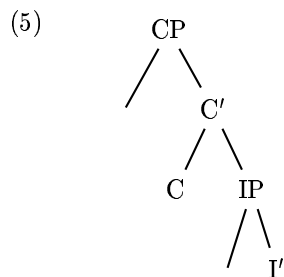
The analysis makes the following claims about the categorical status of *som*, *at*, and *der* in relative clauses:

- (3)
- a. *som* is an invariant operator²
 - b. *at* is a complementizer
 - c. *der* is an expletive³

The distributional facts to be accounted for are as follows:

- (4)
- a. *der* occurs only in subject relative clauses
 - b. *som* occurs in subject and non-subject relative clauses
 - c. *som* does not participate in pied-piping
 - d. when *som at der* are all present they must appear in that order
 - e. either *som* or *der* must be present in a subject relative clause

In the following sections I show how these facts can be accounted for under the categorical status assigned to *som*, *at* and *der*. I will assume a restrictive theory of clause structure, where specifiers are unique and where there is no CP recursion in relative clauses (contra Vikner (1991)). Thus the phrase structure of the left periphery of relative clauses is as in (5):



²I distinguish between invariant operators (*som* and *OP*) and *wh*-operators (*hvad* ‘what’, *hvem* ‘who’, *hvilke* ‘which’ ...). The distinction is based on how much lexical information is encoded in the operator. *Wh*-operators are inherently marked for semantic and syntactic distinctions like animacy, number, specificity, and case, while invariant operators provides none of this kind of information. When the type of operator (invariant or *wh*) is not relevant I use ‘operator’ as a cover term, on the understanding that we are considering only the class of operators involved in constructions involving A-bar movement, including relative clauses, clefts and interrogatives.

³Danish also has a place adverbial *der* which differs prosodically from the expletive *der* in being stressed. Since adverbial *der* does not play a role in the analysis developed here, I use *der* throughout to refer to the unstressed expletive *der*.

I further assume the Extended Projection Principle (EPP), which in its most general formulation says that [Spec, IP] must be filled. I will not make any specific assumptions about its technical implementation, since I believe these to be irrelevant for the proposal I am making here. I further assume that there is operator movement to [Spec, CP] in relative clauses, again without making any specific assumptions about what is driving this movement (feature checking, *wh*-criterion), though I will assume that it is an instance of A-bar movement.

2 The syntactic category and distribution of *som*, *at*, and *der*

In this section I show how their syntactic category affects the distribution of *som*, *at* and *der* in relative clauses. I start with the distribution of *der* in section 2.1, then turn to *som* in section 2.2, and finally *at* in section 2.3. I conclude with a note on linear order in section 2.4.

2.1 *Der* occurs only in subject relative clauses

As illustrated in (6) below, *der* occurs in subject relative clauses (6a), but not in object relative clauses (6b), and also not in relative clauses where the relativized constituent is a PP, irrespective of whether the preposition has been standed as in (6c) or pied-piped as in (6d):

- (6) Vi kender de lingvister ...
 We know the linguists ...
- a. der vil læse denne bog [subject relative]
 there will read this book
- b. *der han vil besøge [object relative]
 there he will visit
- c. *der han spurgte efter [PP relative, no pied-piping]
 there he asked after
- d. *efter der han spurgte [PP relative, pied piping]
 after there he asked

The fact that *der* only appears in subject relative clauses is directly related to the expletive status assigned to *der*.⁴ The expletive *der* occurs only in the position targeted by the EPP, which I, as conventionally, take to be [Spec, IP]. In non-subject relative clauses that position is occupied by the thematic subject argument, i.e. the pronoun *han* in (6b–d). In a subject relative clause, on the other hand, the thematic subject argument is the operator, which occurs in [Spec, CP] at surface structure. Following much recent work, I will assume that all arguments originate within the lexical layer of clausal structure. More specifically, I will assume that the external argument of a transitive verb originates in the highest position within the lexical layer – [Spec, VP] in older conceptions (Sportiche, 1988), the specifier of *v* or μ in more recent conceptions (Chomsky, 1995; Hale and Keyser, 1993; Kratzer, 1994, 1996). I further assume that the operator in a subject relative clause may move directly from its thematic position to [Spec,CP].⁵ Under exactly those circumstances, the expletive *der* is inserted in [Spec, IP] to satisfy the EPP. This is the analysis of the subject relative clause in (6b), given in (7):

- (7) ... de lingvister_i [CP OP_i [IP der [VP t_i vil læse denne bog]]]
 ... the linguists there will read this book

It is this part of the analysis that opens up the possibility of unifying the analysis of relative clauses and impersonal constructions. I return to this in more detail in section 4.

⁴A similar argument is made in Taraldsen (1991, 101).

⁵This raises some issues about Case, in particular about the Case requirements of operators. I postpone this discussion to section 4.2.

2.2 *Som* is an invariant operator

There are two reasons to believe that *som* is an invariant operator. First its distribution is strikingly similar to that of the invariant null operator OP, and second, *som* cannot cooccur with other operators, in particular *som* cannot cooccur with *wh*-operators like *hvad* ‘what’. I develop these two points in turn below.

2.2.1 The distribution of *som* and OP

The distribution of *som* parallels that of the invariant null operator OP, while differing from the distribution of *wh*-operators in certain respects. The parallel distribution of *som* and OP supports the claim that *som* is an invariant operator, while the distributional differences between *som* and *wh*-operators support the distinction drawn between the two above (cf. footnote 2).

There are at least five points of similarity between *som* and OP:

- (8) *som* and OP both
- occur in subject and non-subject relative clauses
 - occur with any external head irrespective of its animacy, gender, number, case etc.
 - allow preposition standing
 - disallow pied-piping
 - lack a genitive form

I will not attempt to explain why invariant operators have exactly this distribution. For present purposes the goal is to establish that *som* is an invariant operator, and then make the methodological assumption that whatever ultimately accounts for the distribution of null invariant operators, will account for the distribution of *som*.

Invariant operators in subject and non-subject relative clauses As illustrated in (9) below, *som* occurs in subject as well as non-subject relative clauses:

- (9) Vi kender de lingvister ...
We know the linguists ...
- som* vil læse denne bog [subject relative]
who will read this book
 - som* han vil besøge [object relative]
who he will visit
 - som* han spurgte efter [PP relative, no pied-piping]
who he asked after

This is also true of the invariant null operator OP, with the important additional requirement that when OP occurs in a subject relative clause *der* must be present. I return to this fact section 3, where I propose that it can be explained in terms of the Extended Projection Principle. For now, concentrate on the fact that OP, like *som* occur in subject and non-subject relative clauses, as shown in (10):

- (10) Vi kender de lingvister_{*i*} ...
We know the linguists ...
- OP_{*i*} der t_{*i*} vil læse denne bog [subject relative]
there will read this book
 - OP_{*i*} han vil besøge t_{*i*} [object relative]
he will visit
 - OP_{*i*} han spurgte efter t_{*i*} [PP relative, no pied-piping]
he asked after

As operators *som* and *OP* originate in VP-internal position and move to [Spec, CP]. The VP-internal position of the operator depends on the thematic properties of the operator; [Spec, VP] for subject relatives and sister of V and P for object and PP relatives respectively. Under these assumptions relative clauses with *som* and *OP* receive similar structural analyses, as illustrated for object relative clauses in (11):

- (11) ... de lingvister_i
 ... the linguists
- a. [CP som_i [IP han [VP vil besøge t_i]]]
 he will visit
- b. [CP OP_i [IP han [VP vil besøge t_i]]]
 he will visit

Lack of restrictions on external head Unlike *wh*-operators, invariant operators are not specified for semantic and syntactic properties like animacy, gender, number, and case, and they thus occur with external nominal heads irrespective of the semantic and syntactic properties of the that nominal:⁶

- (12) ... de folk_i / den pige_i / det hus_i / den by_i
 ... the.PL people / the.SG girl / the.NEU house / the.COM house
- a. som_i han vil besøge t_i
 he will visit
- b. OP_i han vil besøge t_i
 he will visit

Preposition stranding and pied-piping Danish generally allows preposition stranding as well as pied-piping under A-bar movement:

- (13) Hvem_i gav du bogen til t_i?
 Who gave you book.DEF to
 ‘Who did you give the book to?’
- (14) [Til hvem]_j gav du bogen t_j?
 to who gave you book.DEF
 ‘To who(m) did you give the book?’

However, *som* and *OP* differ from *wh*-operators with respect to preposition stranding and pied-piping in relative clauses. The invariant operators *som* and *OP* are perfect under preposition stranding, while *wh*-operators are at best marginal, cf. Vikner (1991, 112):

- (15) ... de lingvister_i
- a. som_i han gav bogen til t_i
 he have book.DEF to
- b. OP_i han gav bogen til t_i
 he have book.DEF to
- c. ??hvem_i han gav bogen til t_i
 he have book.DEF to

Conversely, invariant operators do not participate pied-piping, while *wh*-operators do:

⁶The following abbreviations are used in the glosses: PL = plural, SG = singular, NEU = neuter gender, COM = common gender.

- (16) ... de lingvister_i
- a. *[til som_i]_j han gav bogen t_j
to he gave book.DEF
- b. *[til OP_i]_j han gav bogen t_j
to he gave book.DEF
- c. [til hvem_i]_j han gav bogen t_j
to who he gave book.DEF

Note that in English the invariant null operator also does not participate pied-piping, while overt *wh*-operators do:

- (17) This is the book_i
- a. *[in OP_i]_j I read it t_j
- b. [in which_i]_j I read it t_j

Whatever the explanation for the inability of invariant operators to participate in pied-piping, the identical behaviour of *som* and *OP* with respect to pied-piping and preposition stranding lends strong support to the claim that *som* is an invariant operator, which differs from *OP* only in being overt.

No invariant operators in genitive relative clauses Invariant operators do not occur in genitive relative clauses, while *wh*-operators do:

- (18) Jeg kender en forfatter_i
I know an author
- a. *[som_i bog]_j du har læst t_j
[book] you have read
- b. *[OP_i bog]_j du har læst t_j
[book] you have read
- c. [hvis_i bog]_j du har læst t_j
[whose book] you have read

Again a similar contrast is found in English between the invariant null operator and overt *wh*-operators:

- (19) I know an author_i
- a. *[OP_i book]_j you have read t_j
- b. [whose_i book]_j you have read t_j

2.2.2 Co-occurrence with *wh*-operators

The second argument for *som* being an invariant operator comes from the fact that it cannot co-occur with *wh*-operators like *hvad* ‘what’, *hvem* ‘how’, and *hvis* ‘whose’. Interestingly, *der* differs from *som* in being able to co-occur with these *wh*-operators. This is entirely consistent with the analysis proposed here, where *der* is an expletive element occurring in [Spec, IP]. As shown in (20) – (22) there are at least three instances where *der* co-occurs with a *wh*-operator, and in none of these can *som* occur:

Embedded subject relatives (example from Vikner (1991: 119))

- (20) Jeg ved ikke ...
 I know not ...
- a. **hvem** du tror **der** har gjort det
 who you think there has done it
- b. ***hvem** du tror **som** har gjort det
 who you think has done it

Genitive subject relative clauses (example from Vikner (1991, 111)⁷, cf. also Erteschik-Shir (1984))

- (21) Jeg kender en pige ...
 I know a girl ...
- a. ?... [**hvis hund**] **der** spiser æbler
 ... whose dog there eats apples
- b. *... [**hvis hund**] **som** spiser æbler
 ... whose dog who eats apples

Appositional subject relatives with clausal antecedents (example from WEEKENDAVISEN 03/17/00)

- (22) ... vores eget fly var gået definitivt i stykker
 ... our own plane was gone definitively in pieces
 ‘... our own plane had definitively broken down’
- a. **hvad der** udløste voldsomme protester ...
 what there caused strong protests ...
 ‘which caused strong protests ...’
- b. ***hvad som** udløste voldsomme protester ...

Under the analysis developed here, the contrast between *der* and *som* in (20) – (22) relates directly to the categorical status of *der* and *som*. In relative clauses operators undergo A-bar movement to [Spec, CP]. There is only one [Spec, CP], since specifiers are unique and there is no CP-recursion in relative clauses. Under these assumptions it follows that *som* cannot co-occur with a *wh*-operator, since both must occur in [Spec, CP], and there is only one [Spec, CP], which cannot host two operators. The fact that *der* can co-occur with *wh*-operators is entirely consistent with the present analysis, if not expected: as an expletive *der* occurs in [Spec, IP] which is an A-position and its presence is not expected to interfere with A-bar movement to [Spec, CP]:

- (23) ... [CP hvem_i tror du [CP t_i [IP der [VP t_i har gjort det?]]]]
- (24) ... en pige_i [CP [hvis_i hund]_j [IP der [VP t_j har spist æblet]]]]
- (25) ... [CP hvad_i [IP der [VP t_i udløste voldsomme protester ...]]]

⁷Vikner (1991, 111) gives (21a) a question mark, and I agree that the example is slightly degraded. Like Vikner I cannot offer an explanation for the relative degradedness of (21a), except to note that the degree of degradation is similar to that found in subject relative clauses where *der* co-occurs with *som* (cf. section 3). Under the present analysis, these cases are parallel to (21a) in that *der* co-occurs with a overt operator in [Spec, IP], and without venturing a concrete proposal I believe that this is in fact the source of the slight deviance of these examples. The question remains though why (20a) and (22a) are not similarly degraded

2.3 The complementizer *at*

Let us finally examine the categorical status of *at*. The assumption that *at* is a complementizer is probably the least controversial part of the analysis, and it is shared by all previous analyses of Danish relative clauses that I know of, including Jacobsen and Jensen (1982), Erteschik-Shir (1984)⁸, Taraldsen (1986, 1991), and Vikner (1991). Like the English complementizer *that*, *at* occurs in complement clauses and subject clauses:

- (26) a. Mikkel sagde [_{CP} **at** kartoflerne var færdige]
Mikkel said that potatoes.DEF were done
‘Mikkel said that the potatoes were done’
- b. [_{CP} **At** Skotland kommer med til VM] er helt udelukket
That Scotland comes with to World.Cup is totally out.of.the.question
‘That Scotland makes the World Cup is absolutely impossible’

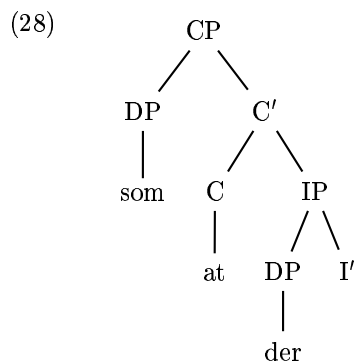
Moreover, subject extraction from embedded clauses containing *at* gives rise to an impairment of acceptability similar to that attributed to the *that*-trace effect in English (see also Taraldsen (1986, 181, fn. 9)):

- (27) a. Hvem_i tror du **at** hun har inviteret t_i til festen?
Who think you that she has invited t to party.DEF
‘Who do you think that she has invited to the party?’
- b. ??Hvem_i tror du **at** t_i har inviteret hende til festen?
Who think you that t has invited her to party.DEF

I will return to the possible relevance of the (*th*)*at*-trace effect in the next section, but let us first consider the linear order of the three elements *som*, *at*, *der*.

2.4 Linear order

So far I have argued that *som* is an invariant operator, *at* a complementizer, and *der* an expletive. As an operator *som* occurs in [Spec, CP], the complementizer *at* occupies the head position of CP, and the expletive *der* occupies [Spec, IP]:



The structure in (28) allow us to make a prediction about linear order: when *som*, *at*, and *der* are all present in a relative clause they must appear in that order. The prediction is born out as shown in (29):

- (29) Vi kender de lingvister ...
We know the linguists ...
- a. *som der at vil læse denne bog
will read this book
- b. *at der som ...

⁸Erteschik-Shir (1984, 137) actually rejects relative clauses with *at* as grammatical, but she nonetheless considers *at* a complementizer.

- c. *at som der ...
- d. *der som at ...
- e. *der at som ...

This unique linear order is harder to account for on analyses where *som* and/or *der* are also complementizers, in particular Vikner (1991, 120) has to postulate very specific requirements on co-indexation and Spec-head relations to account for unique linear order. On the present analysis, linear order follows directly from the categorial status assigned to each of these elements and standard X-bar theoretic assumptions about the structure of CP.

3 EPP effects

The left periphery of a subject relative clause may be realized by different combinations of the three elements *som*, *at* and *der* with varying degrees of grammaticality. Based on the detailed judgements given in Jacobsen and Jensen (1982, 10) I have organized the data into three categories: fully grammatical, grammatical with some degree of degradation (?-??), and ungrammatical (*), as illustrated (30):⁹

- (30) Vi kender de lingvister
- | | | |
|------------|--------------------|------------|
| a. som ... | c. ?som der ... | g. *at ... |
| b. der ... | d. ?at der ... | h. * ... |
| | e. ?som at der ... | |
| | f. ??som at ... | |

I will first consider the difference between grammatical and ungrammatical realizations, i.e. (30a-f) vs (30h-g), and then turn to the variation within the set of grammatical realizations. The data in (30) reveals an important descriptive generalization stated in (31):

- (31) **Descriptive Generalization:** either *som* or *der* must appear in a subject relative clause.

This requirement is fulfilled in (30a-f) which are all grammatical – through to varying degrees – but not in the ungrammatical (30h-g). I propose that the generalization in (31) is a direct reflection of the Extended Projection Principle (EPP). In a subject relative clause the EPP can be satisfied in two ways. Either the operator moves directly from its thematic position to [Spec, CP] and the expletive *der* occurs in [Spec, IP] to satisfy the EPP. Alternatively, the operator moves to [Spec, CP] via [Spec, IP], and no expletive is inserted. If the operator is overt, i.e. *som*, it satisfies the EPP in the intermediate position. I assume that the null operator OP cannot satisfy the EPP, consistent with the fact that Danish does not allow pro-drop.

To illustrate the proposal in more detail, let us go through some of the individual cases. Consider first the analysis of (30a):

- (32) [CP som_i [IP t_i [VP t_i ...]]]

Here the invariant operator *som* moves from its thematic position [Spec, VP] to [Spec, IP], where it satisfies the EPP. From [Spec, IP] it moves to [Spec, CP]. This a familiar instance of A-movement followed by A-bar movement of the (head of the) resulting A-chain. Since *som* satisfies the EPP in its intermediate position no expletive is inserted. Note also that the head position of the CP is empty. This is consistent with the descriptive generalization that *at* is generally optional in embedded clauses, similar to the situation with English *that*. Here I remain agnostic as to whether this is due to optional deletion of *at* or alternation with a null complementizer. Next consider the analysis of (30b) given in (33):

- (33) [CP OP_i [IP der [VP t_i ...]]]

⁹As pointed out by Vikner (1991) many prescriptive grammars consider the middle category ungrammatical, which may influence speaker judgements. There nonetheless seems to be a clear enough difference between degraded (?-??) and ungrammatical (*) to warrant this distinction.

Here the null operator has moved directly from its thematic position to [Spec, CP], and the expletive *der* occurs in [Spec, IP], satisfying the EPP. Again *at* is absent, indicating either deletion or a null C head. Consider next the ungrammatical (30g). Given what we established about direct and indirect operator movement above, there are two possible derivations for the ungrammatical (30g). These are given in (34):

- (34) a. * $[_{CP} OP_i \text{ at } [_{IP} \quad [_{VP} t_i \dots]]]$
 b. * $[_{CP} OP_i \text{ at } [_{IP} t_i [_{VP} t_i \dots]]]$

In (34a) the empty operator has moved directly from [Spec, VP] to [Spec, CP] leaving [Spec, IP] empty, resulting in an EPP violation. In (34b) the empty operator has moved to [Spec, CP] via [Spec, IP], leaving a trace in the intermediate position. The question is why is the derivation in (34b) not grammatical? The answer I would like to pursue here is that like (34a), (34b) violates the EPP. The crucial assumption behind this answer is that the null operator cannot satisfy the EPP. Support for this assumption comes from a fact about English null operator constructions first noted by Arlene Berman, and later discussed in detail by Stowell (1984) and Browning (1987). Berman's observation is that the trace of an infinitival null operator may never originate in [Spec, IP]:

- (35) *This candidate is hard $[_{CP} OP_i \text{ for } [_{IP} \text{ people to believe } [_{IP} t_i \text{ to be competent }]]]$

In (35) the null operator starts out in the specifier of the lower IP, from here it undergoes A-bar movement to the closest [Spec, CP]. There is no obvious reason why the sentence should be ungrammatical, but it is. If we assume that, least in non-pro-drop languages like English and Danish, null operators cannot satisfy the EPP, the ungrammaticality could be attributed to an EPP violation in the lowest clause.

Lets summarize what we have seen so far: either *som* or *der* can satisfy the EPP in a subject relative clause. In the first case the operator moves to [Spec, CP] via [Spec, IP] satisfying the EPP in the intermediate position. In the second case the operator moves directly to [Spec, CP] and the expletive is inserted in [Spec, IP] where it satisfies the EPP. If neither *som* or *der* are present the derivation is ruled out by the EPP, since the null operator by assumption cannot satisfy the EPP, and there is no expletive to do the job.

Turning now to the analysis of the four cases of intermediate grammaticality (30c) – (30f), let us first note that all of these satisfy the EPP:

- (36) $?[_{CP} som_i \quad [_{IP} der [_{VP} t_i \dots]]]$ (= (30c))
 (37) $?[_{CP} OP_i \text{ at } [_{IP} der [_{VP} t_i \dots]]]$ (= (30d))
 (38) $?[_{CP} som_i \text{ at } [_{IP} der [_{VP} t_i \dots]]]$ (= (30e))
 (39) $??[_{CP} som_i \text{ at } [_{IP} t_i [_{VP} t_i \dots]]]$ (= (30f))

In the first three cases (36) – (38) the EPP is satisfied by the expletive in [Spec, IP], the operator has moved directly to [Spec, CP]. In (39) the EPP is satisfied by the overt operator *som* in its intermediate position, and no expletive is inserted. If we first compare (36) – (39) to (32) and (33) above, another descriptive generalization emerges: realizations with more than one overt element in the left periphery are degraded compared to realizations with exactly one overt element (i.e. *som* or *der*). I do not have a concrete suggestion as to why this should be, but one could imagine several possible explanations, including economy effects, processing effects, and influence from prescriptive grammars (cf. Vikner (1991, 132, fn. 15)). Since I have nothing substantial to say I will not pursue the issue further. I will, however, make a suggestion as to why (39) is worse than (36) – (38). Relying on the observation made in section 2.3 about (*th*)*at*-trace effects in Danish, I want to suggest that relative illformedness of (39) in comparison with (36) – (38) can be understood as reflecting the contribution of the *that*-trace effect. In (39) *at* immediately precedes the operator trace in [Spec, IP], giving rise to a typical (*th*)*at*-trace configuration. Such a configuration is not found in any of (36) – (38). In (36) *at* is not present, and in (38) and (37), where *at* is present there is no trace in [Spec, CP], which is instead occupied by the expletive.

Non-subject relative clauses Above I have argued that the obligatory presence of either *som* or *der* in subject relative clauses is due to the EPP. If this is correct, we expect there to be no such requirement in relative clauses where the EPP is satisfied independently, i.e. in non-subject relative clauses. This is indeed the case as illustrated by the data in (40):

- (40) Vi kender de lingvister ...
- a. [CP OP_i [IP han [VP vil besøge t_i]]] [object relative clause]
 he will visit
- b. [CP OP_i [IP han [VP spurgte efter t_i]]]
 he asked for

In both cases the thematic subject *han* satisfies the EPP, and there is no need for an overt operator or expletive.

4 A unified analysis of expletive and relative *der*

Danish has a range of impersonal constructions of the schematic form given in (41) (see Vikner (1995) for comprehensive analysis and discussion of these constructions).

- (41) *Der* v (V) DP (XP)
 Expletive finite verb (non-finite verb) DP (adverbial)

The expletive *der* occurs in the initial position, and the thematic subject DP appears after the rightmost verb. The analysis of *der* as an expletive in subject relative clauses opens up the possibility of a unified analysis of relative clauses and these impersonal constructions. Compare the subject relative clause in (42) to the embedded impersonal construction in (43):

- (42) Vi kender de lingvister [CP OP [IP **der** vil læse denne bog]]
 We know the linguists there will read this book.
 ‘We know the linguists that will read this book’
- (43) Vi ved [CP at [IP **der** vil blive læst mange bøger]]
 We know that there will be read many books
 ‘We know that many books will be read’

What I propose here is that in both constructions *der* is an expletive, which occurs in [Spec, IP] to satisfy the EPP. There are several advantages to a unified treatment of relative clause constructions and impersonal constructions, but also some challenges. The first advantage is methodological: there is no need to stipulate that there are two different lexical items pronounced *der*, one of which is a complementizer and the other a nominal expletive element. This stipulation is made in (Vikner, 1991, 110) and (Jacobsen and Jensen, 1982, 6). The second advantage is that this unification brings together two classes of constructions, which have been previously been largely studied separately, and with separate theoretical issues in mind. Impersonal constructions have primarily been investigated from the point of view of A-movement, and the related issues of Case and theta-role assignment (e.g. Vikner (1995)), while relative clauses have been studied primarily from the point of view of A-bar movement and operator-variable binding. A unified analysis of relative clauses and impersonal constructions allows us to investigate directly the interaction of phenomena associated with A and A-bar movement.

The main challenge to the kind of unified analysis of relative and impersonal constructions sketched above is to account for cases where they appear to behave differently. As pointed out by (Vikner, 1991, 115), there are at least two such cases, involving definiteness restrictions and transitivity restrictions.

Definiteness restrictions Danish impersonal constructions display a definiteness restriction on the postverbal argument of the sort studied in detail for English by Milsark (1979). This is illustrated by the contrast in (44). In contrast, subject relative clauses containing the expletive *der* do not appear to display any such restriction, as illustrated by the lack of contrast in (45):

- (44) 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

- (45) 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.

Transitivity restrictions Impersonal constructions also display a transitivity restriction. The verb in an impersonal construction cannot be transitive, only intransitives and passive forms are allowed, cf. Vikner (1995, 168). In subject relative clauses on the other hand, there is no transitivity restriction, and any verb can appear.¹⁰

- (46) Vi ved at ...
 We know that ...
- a. der bliver læst **mange bøger**
 there are read many books
- b. *der **mange lingvister** læser **denne bog**
 there many linguists read this book
- c. *der læser **mange lingvister denne bog**
 there read many linguists this book

- (47) Vi kender ...
 We know ...
- a. **mange bøger** der bliver læst
 many books there are read
- b. **mange lingvister** der læser **denne bog**
 many linguists there read this book.

In the following two sections I try to show that these differences are in fact consistent with the analysis of relative clauses proposed above. The strategy in both cases is to show that the difference in question derives from differences in the syntax of impersonal and relative clauses. The discussion will be based on observations made independently for other languages about the definiteness value of relative operators and Case requirements of operators that undergo A-bar movement.

4.1 The lack of a definiteness restriction in relative clauses

In this section I argue that the lack of definiteness effects in a subject relative clause like (48), is not inconsistent with *der* being an expletive. If this argument can be made successfully it removes one of the objections to treating *der* as an expletive in relative clauses.

- (48) Vi kender **de** lingvister [_{CP} OP_i [_{IP} der [_{VP} vil komme t_i]]]
 We know the linguists there will come

I begin with an observation about English relative clauses made in Browning (1987). Based on data like that in (49), Browning observes (p. 130) that “[g]aps in relative clauses appear to be indefinite even when the relative heads are definite”.

- (49) a. *There were the men in the garden (= Browning’s (164a))
 b. The men that there were in the garden were all diplomats (= Browning’s (165a))

¹⁰There are several potential positions for a thematic subject in a transitive expletive constructions, but none of these are possible in Danish (cf. Vikner (1995, 189ff)). Here I concentrate on the immediately pre-verbal position, but I believe that the observations made below, carries over to the other potential subject positions discussed in Vikner (1995).

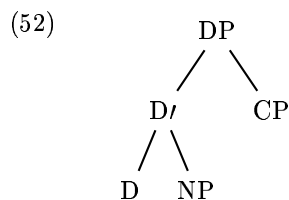
(49a) is an existential construction and it violates Milsark’s definiteness restriction on existential constructions, since it has a definite (i.e. strong) noun phrase in the postcopular position. In (49b) the definite noun phrase has moved out of the existential clause, forming a relative clause with a gap in the post-copular position. Crucially, (49b) is grammatical, which is what leads to Browning’s observation that the gap “appear[s] to be indefinite” even though the relative head (=the man) is definite. The suggestion I want to make here is that Browning’s observation about English carries over to Danish, even though the two languages seem to differ in how relative clauses like (49b) are interpreted (see the discussion in section 4.1.1 below). Thus the suggestion is that Danish data in (50), are, in the relevant respects, parallel to the English data in (49):

- (50) a. *Der kommer **de** lingvister til festen
 there comes these linguists to party.DEF
 b. **De** lingvister der kommer til festen er alle fra Sverige
 the linguist there comes to party are all from Sweden

Browning considers two possible explanations for the lack of definiteness effects in relative clauses like (49b).¹¹ One possibility she considers is that the trace of the relative operator is inherently indefinite. This means that a structure like (51) does not violate the definiteness restriction (as long as the definiteness restriction is understood as a restriction against definite elements in the post-copular position of an existential clause):

- (51) The men [CP OP_i that there were t_i in the garden] were all diplomats

Another possibility, which she ends up proposing as the correct one, is the lack of definiteness effects in relative clauses stems from the fact “that the antecedent of the relative operator is NP . . . , a category which is unspecified for definiteness”, p. 131. Browning is proposing a structure like that in (52) where the only possible antecedent is the NP:



More recently Bianchi (1999) has reached similar conclusions about the lack of definiteness effects in relative clauses, working within the antisymmetry framework of Kayne (1994). Bianchi argues for a raising analysis of relative clauses, and considers in this connection the possibility of reconstruction of the external determiner to the gap position inside the relative clause, which could give rise to definiteness effects in relative clauses. Based on detailed empirical investigations she concludes (p. 46) that “. . . the determiner introducing the relative “head” is generated outside the relative clause, and hence it is not reconstructed in the trace position.” Bianchi (1999, 80-96) also argues, following Reinhart (1987), that relative *wh*-words like English *who* and *which* are not definite, which is related to Browning’s first suggestion that traces of relative clause operators are inherently indefinite.

Working within rather different frameworks the two authors reach the same conclusion as regards definiteness effects in relative clauses, namely that these are not to be expected, and I will take this as evidence that the analysis of *der* as an expletive in subject relative clauses is not inconsistent with the lack of a definiteness restriction in these constructions.

4.1.1 A semantic aside

Carlson (1977) claims that relative clauses like (49), which involve relativization of the postverbal argument of an existential *there*-construction form a separate class called amount relatives, which differ from ordinary restrictive relative clauses semantically in involving quantification over degrees rather than individuals. Heim (1987) proposes that the variable in an amount relative is not a variable over individuals, but rather a variable over degrees. She then proposes (53) as a semantic characterization of the definiteness restriction:

¹¹This and related issues are discussed in detail in Bianchi (1999) within the framework of Kayne (1994), see especially pp. 41-49, and 80-86.

(53) **There be x*, when *x* is an individual variable

(53) rules out (49b) on a reading where the variable corresponding to the postcopular trace ranges over individuals, but allows it on a (49b) where the trace translates as a variable over degrees.

No such restriction is evident in Danish subject relatives, which will be structurally analogous to (49b) if *der* is really an expletive. Note though that discussion of ‘amount relatives’ have been exclusively concerned with **existential** constructions, not with impersonal constructions more generally. (Heim’s generalization in (53) is careful to make this explicit.) If Carlson’s restrictions derive from the semantics of existentials (as argued by e.g. Arnold (2000)), we do not expect to see evidence of them in cases such as (50b).

4.2 The lack of a transitivity restriction in relative clauses

The lack of a transitivity restriction in subject relative clauses is probably the most serious empirical and theoretical challenge to a unified analysis of relative clauses and impersonal constructions. I cannot offer an explanation of this difference, but in this section I will try to place the Danish data in a wider set of observations about the interaction of A and A-bar movement.

Let us start with the fact that Danish does not allow transitive expletive constructions (TEC):

(54) *Vi ved at [der mange lingvister læser denne bog]
we know that there many linguists read this book

Vikner (1995, 152-153, 188-190) argues that this is due to the lack of V^0 to I^0 movement in the language, which prevents the subject DP *mange lingvister* from being Case licensed in a position lower than [Spec, IP] (a similar argument is made in Bobaljik and Jonas (1996) with respect to the licensing of [Spec, TP] as a subject position). On the other hand, subject relative clauses may be transitive:

(55) Vi kender mange lingvister [der læser denne bog]
we know many linguists there read this book.

If we pursue a unified analysis of impersonal constructions and relative clauses, where *der* is uniformly an *expletive* in [Spec, IP] this leads to a puzzle:

(56) Why are transitive subject relative clauses possible, when transitive expletive constructions are not possible?

Following Vikner’s account of the lack of TEC, I suggest that the relevant difference has to do with Case, more specifically, that the Case requirements of the relative operator differs from those of the thematic subject in a transitive impersonal construction. There is cross-linguistic evidence that Case requirements are weakened in constructions involving A-bar movement. This was observed for French and English in Kayne (1980, 79-80), and discussed in Rizzi (1990, 60) (for more recent discussion see also Alexiadou and Anagnostopoulou (2001) and Richards (1999))

(57) a. Who_i can you assure me t_i to be competent?
b. *I assure you them to be competent

(58) a. Jean, que Marie croit être intelligent, ... (= Kayne’s (35))
John, who Mary believes to.be intelligent ...
b. *Marie croit John être intelligent. (= Kayne’s (36))

What the data in (57) and (58) seem to show is that an A-bar chain need not originate in a Case position (though see Postal (1993) for a different interpretation). This observation is relevant to the puzzle set out above, since relative clauses involve A-bar movement of the relative operator, whereas impersonal constructions (typically) do not:

(59) Vi kender mange lingvister [_{CP} OP_i [_{IP} der [_{VP} t_i læser denne bog]]]
we know many linguists there read this book.

- (60) *Vi ved [CP at [IP der [VP mange lingvister læser denne bog]]]
 we know that there many linguists read this book

What I want to suggest is that the difference between (59) and (60) is parallel to the difference between (57a) and (57b) above. I maintain with Vikner (1995) that (60) is ungrammatical because the thematic subject DP *mange lingvister* is not Case licensed, just like the DP *them* is not Case licensed in (57b). (59) is grammatical for whatever reason (57a) is.

If the suggestions about Case and A-bar movement made above are on the right track we expect TEC to be allowed when the subject undergoes A-bar movement. However, this expectation is generally not born out:

- (61) *_{[CP [Mange lingvister]_i læste_j [IP der t_j [VP t_i t_j denne bog]]]} [topicalization]
 [many linguists]_i read_j there t_j t_i t_j this book
- (62) *_{[CP Hvem_i læste_j [IP der t_j [VP t_i t_j denne bog?]]]} [interrogative]
 who_i read_j there t_j t_i t_j this book

Taraldsen (1991, 105-106) argues that ungrammaticality of (61) and (62) has to do with the fact that the finite verb has moved to C⁰, which is again related to the verb second nature of Danish main clauses Vikner (1995). If the ungrammaticality of (61) and (62) can be explained independently, it might be possible to maintain the approach to the lack of transitivity restrictions in relative clauses sketched above, but the matter clearly needs further investigation.

Before leaving the issue of transitive expletive constructions, I would like to point out a fact about older stages of Danish that lends tentative support to the unified analysis of expletive constructions and relative clauses suggested here.

As illustrated by the data in (63) – (65), earlier stages of Danish seem to have allowed transitive expletive constructions. The data are taken from *Ordbog over det Danske Sprog* (Dictionary of the Danish Language), p. 631.¹²

- (63) **Der** skal dog Ingen narre mig i Sligt
 there shall though no-one fool me in such matters
 ‘No one will fool me in such matters’
- (64) Saadan en Elendighed har **der** aldrig Nogen hørt
 such a misery has there never anyone heard
 ‘No one has ever heard of such misery’
- (65) Har **der** nogen Mennesker paa Jorden hørt Mage
 has there any people on earth heard like
 ‘Has anyone on earth heard the like’

Within the same period the expletive *der* also occurred in non-subject relative clauses, as the example in (66) shows:

- (66) Alle de Sløjder, **der** jeg kan dem lærer jeg eder saa gerne
 all the wood.skills there I can them teach I you so willingly
 ‘I am very willing to teach you all the wood skills that I master’

Whatever the explanation for the ability of older Danish to license subject DPs in positions below [Spec, IP], the correlation between TEC and non-relative clauses with expletive *der* supports a unified account of expletive constructions and relative clauses.

¹²I lack access to the exact date of the original sources for these data, but they are all from the end of the nineteenth century.

5 Conclusion

In this paper I have proposed an analysis of subject relative clauses in Danish where *som* is an invariant operator, *at* a complementizer, and *der* an expletive. The analysis accounts for the distribution of these elements, their internal ordering, co-occurrence with *wh*-operators, and the restrictions on the realization of the left periphery of subject relative clauses. In addition to these descriptive advantages the analysis opens up the possibility of a unified analysis of relative clauses and impersonal constructions. A unified analysis raises several questions, the most serious one being the lack of a transitivity restriction in subject relative clauses. Without offering an explanation of this difference, I have tried to show how it is consistent with a broader set of observations about the interaction of Case and A-bar movement, which are still in need of a satisfactory account.

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