

There-constructions with transitive verbs

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Abstract

In this paper we address the question of which transitive verbs allow there-insertion in Danish. We propose that two constraints have to be met in order for verbs to appear in Danish there-constructions. Firstly, as have been noted by others, an empty direct object position must be available. This constraint is not sufficient for restricting the set of verbs in there-constructions. We further propose a “locative” constraint. The transitive verbs allowing there-insertion will be shown to coincide with verbs that allow a locative analysis.

1 Introduction

The there-construction has traditionally been discussed within the context of unaccusativity, claiming that the verbs that allow there-insertion are unaccusative verbs, cf. Burzio (1986). However, due to the observation that in certain languages, e.g. Scandinavian languages, unergative verbs do allow there-insertion, it has been suggested that there-insertion is not an unaccusativity diagnostic and that verbs allowing there-insertion form a more heterogeneous group, cf. e.g. Sveen (1996) and Lødrup (2000).

In this paper we will focus on a group of transitive verbs that allow there-insertion in Danish. This group also constitutes an exception to the unaccusativity constraint on there-insertion. We want to argue that the distribution of verbs in Danish there-constructions is determined by a “locative” constraint. An important function of the there-construction is to “locate” the logical subject referent in a state. See also Bresnan (1993) who proposes a similar constraint for the English locative inversion construction. Our constraint accounts for both transitive and intransitive (unergative and unaccusatives) verbs appearing in the Danish there-construction, cf. Bjerre and Bjerre (2008) for an account of intransitive verbs in there-constructions. We will, in other words, show that both lexical semantics and grammatical functions together predict the set of verbs entering the there-construction.

In section 2 we will present some previous views on transitive verbs in there-constructions. In section 3 we will present Danish there-constructions with transitive verbs, showing how they express possession and experience. In 4 we will take a second look at the transitive verbs in there-constructions expressing experience. Finally, in section 5 we will formalize our account of transitive verbs in there-constructions.

2 Background

Certain languages allow transitive verbs in there-constructions, others do not. Maling (1988) gives the examples in (1) showing the distinction.

- (1) a. *Det åt en man en pudding. (Swedish)

- b. *There ate a man a pudding. (English)
- c. það borðaði maður búaing. (Icelandic)

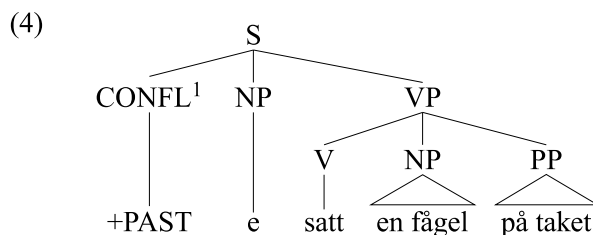
Platzack (1983) suggests that the difference between languages allowing transitive verbs in there-constructions and languages not allowing transitive verbs in there-constructions is determined by the grammatical function of the expletive pronoun. As shown in (2) the expletive pronouns has the same position as ordinary subjects in questions in English and Swedish, but not in German and Icelandic.

- (2) a. Was there a man in the drainpipe?
- b. Satt det en fågel på taket?
 'Was-sitting there on the roof'
- c. Sind (*es) in diesem Zimmer zwei Stühle?
 'Are there in this room two chairs'
- d. Eru (*það) mýs in baðkerinu?
 'Are there mice in the bathtub'

The positioning of the expletive in English and Swedish suggests that it functions as the subject and appears in subject position, whereas in German and Icelandic, the expletive pronoun appears in topic position and does not function as the subject. Platzack (1983) suggests that this distinction determines whether transitive verbs are allowed in there-constructions.

Languages in which the expletive functions as subject do not allow transitives. The explanation for the non-occurrence of transitives in English and Swedish is based on the assumption that the “logical subject” in these languages occupies the NP position inside the VP, i.e. [NP, VP], and there is only one NP position in VP. (Platzack, 1983, p. 89) assumes the D-structure in (4) for the Swedish there-construction with an intransitive in (3).

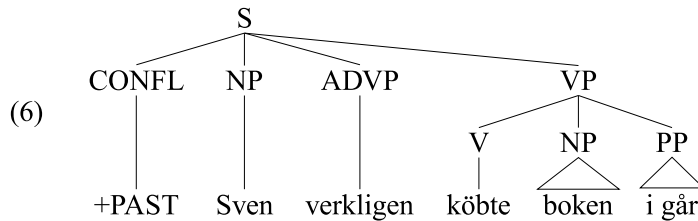
- (3) Det satt en fågel på taket.
 'There was-sitting a bird on the roof'



Transitive verbs are then excluded as the [NP, VP] position is occupied by the direct object of the transitive verbs, as shown in (5) and (6), Platzack (1983).

¹CONFL is a position where both complementizers and tense markers are generated, (Platzack, 1983, p. 82).

- (5) Sven köbte verkligen boken igår.
'Sven bought really the book yesterday'



Nevertheless, we do find there-constructions with transitive verbs, both in English, Swedish and Danish. This is also noted by the above authors.

Platzack (1983, p. 92) gives the examples in (7) as exceptions to his generalization, but offers no explanation.

- (7) a. Det hände honom något konstigt igår.
'There happened him something strange yesterday'
b. Det väntade mig en verklig överraskning när jag kom hem.
'There waited me a real surprise when I came home'

Askedal (1986) and Lødrup (2000) also attribute the non-occurrence of transitive verbs in there-constructions to the functional status of the logical subject as that of direct object. They assume that in Norwegian counterparts of (7), the objects are indirect objects, and consequently the direct object position is still vacant for the logical subject to fill. They point out that the logical subject in there-constructions appears in a VP construction which is structurally identical to a regular VP construction with an indirect object preceding a direct object. To illustrate this, Askedal (1986) gives the Norwegian examples in (8) and Lødrup (2000) gives the examples in (9) which are also Norwegian.

- (8) a. Da hadde det tilstøtt ham noe alvorlig.
Then had there happened him something serious
b. Da hadde hun gitt ham en ny bok.
Then had she given him a new book
- (9) a. Det blev overrakt barna en liten gevinst.
There was awarded the-kids a small prize
b. Hun har overrakt barna en liten gevinst.
She has awarded the-kids a small prize

An objection to the explanation regarding the direct object position is put forward by e.g. Maling (1988) and Börjars and Vincent (2005). They refer to verbs that are optionally transitive. Börjars and Vincent (2005, p. 60) refers to the example in (10), originally from Lødrup (2000).

- (10) *Det spiste en mann en kake.
EXPL eat.PST a man a cake
 There was a man eating a cake

The intransitive variant of such verbs are not allowed in there-constructions, even though the direct object position is not filled by a direct object preventing the logical subject to fill the position, as the example in (11) from Börjars and Vincent (2005) shows.

- (11) *Det åt ett litet barn i köket.
EXPL eat.PST a.NT small.NT.SG child(NT) in kitchen.DEF
 A small child was eating in the kitchen

These examples show that the constraint that a vacant direct object position is required is not sufficient. A further development of this “logical subject-is-direct object” approach is based on semantics referring to semantic roles. Maling (1988, p. 175) suggests that verbs associated with an agent role cannot occur in there-constructions, as agents must be assigned to subject position and not direct object position. This explains the exceptions noted by Platzack (1983), as the verbs in (7) have no agent role, and also the examples from Maling (1988) in (12).

- (12) a. Det nådde Tomas ett brev hemifrå.
There reached Tomas a letter from-home
 b. Det slog mig något interessant igår.
There struck me something interesting yesterday
 c. *Det slog mig en kollega.
There struck me a colleague

Maling adds the further restriction that the verbs associated with an experiencer role cannot occur either. This addition is motivated by the observation that psych-verbs do not occur in there-constructions, neither the subject experiencer nor the object experiencer variants. The examples in (13) are from Maling (1988, p. 176).

- (13) a. *Det skrämmer mig sådana tanker.
there scares me such thoughts
 b. *Det behagede honom lite musik.
there pleased him a little music

An alternative explanation to the phenomenon is to maintain that the logical subject is in effect a subject. Its position is then attributed to information-structural constraints. This course of explanation is taken by Börjars and Vincent (2005). They argue against the direct object analysis of the logical subject, claiming that the logical subject is a post verbal subject. This violates a topological rule saying that the subject precedes the indirect object. In sentences with inversion, the subject appears immediately after the finite verb, before the indirect object.

They argue, though, that the indirect object in there-constructions precedes the subject because of information-structural constraints, referring to a constraint by Börjars et al. (2003) that known information tends to precede new information.

The constraint is formulated to account for object shift in Swedish, and so an important restriction to the constraint is that it only applies to weak pronoun indirect objects. According to Börjars and Vincent (2005) this accounts for the Swedish data, as they claim that such there-constructions with transitive verbs only occur with weak pronoun indirect objects. The examples in (14) and (15), the latter from Börjars et al. (2003), show how the there-construction with an weak indirect object resembles the construction with long object shift in Swedish.

- (14) Det väntade mig en verklig överraskning när jag kom hem.
'There waited me a real surprise when I came home'

- (15) Då gav honom Eva förmodligen inte några pengar.
then give.PST he.ACC Eva probably not any money

Maling (1988, p. 171), however, claims that Platzak's exception examples are grammatical in Swedish with full NPs instead of pronouns. The Danish examples in (16) show that transitives in there-constructions are not restricted to cases with weak pronoun indirect objects in Danish.

- (16) a. Der tilfaldt visse medlemsstater urimelige fordele.
There fell to certain member states unreasonable advantages
b. Der påhvilede bestyrelsen et ansvar.
There rested on board-the a responsibility

Börjars and Vincent (2005) put forward a list of arguments supporting the analysis of the logical subject as a subject rather than direct object. One concerns agreement properties, another case marking properties, cf. Börjars and Vincent (2005, p. 62-64).

- (17) a. Det blev fyra trafikoffer inlagda igår.
EXPL become.PST four casualty.PL admit.PRT.PL yesterday
'Four traffic casualties were admitted yesterday.'
b. Det var bara hon / *henne hemma.
EXPL be.PST only she.NOM / she.ACC at home
'Only she was at home.'

(17a) shows that in Swedish a participle following the logical subject may agree with it, and (17b) shows that the logical subject is in the nominative form. An example like the Swedish in (17a) is not possible in Danish, but another example with the participle following the logical subject shows that a participle does not agree with the logical subject, and as for the example in (17b), we find that in Danish the accusative case is required. The Danish examples are shown in (18).

- (18) a. Der var kun hende / *hun i lokalet.
There was only her / she in room-the
- b. Hvor mange mennesker blev der dræbt og såret
How many people were there kill.PRT.SG and wound.PRT.SG
 ved færdselsuheld i Italien i det seneste år?
by traffic accidents in Italy in the recent year

One argument they put forward, however, does apply to Danish and it concerns binding properties. In Swedish, and Danish, the reflexive determiner *sin* (his/hers) can only be bound by a subject, and we find that it is bound to the logical subject in there-constructions. A Danish example is given in (19).

- (19) Der sidder en officer_i ved bordet med sin mad_i.
There sits an officer at table-the with his food

However, it does seem, at least in Danish, that the reflexive determiner may be bound by non-subjects in constructions involving elements with “double” grammatical function, as in the there-construction where the logical subject is also the direct object. Another example is given in (20).

- (20) Mulighederne hos Fujitsu overtalte Erik Redsø til at vende tilbage
Opportunities-the at Fujitsu persuaded Erik Redsø to to return
 til sin tidligere arbejdsplads.
to his former work place

In this example we see a reflexive determiner is bound by a direct object which is also in some sense a subject. So, in spite of the binding argument, the evidence is in favour of the direct object analysis of the logical subject in there-constructions for Danish, and it is also the analysis we will pursue in this paper. However, like Maling (1988) we want to propose an additional a semantic explanation of why certain transitive verbs may appear in there-constructions in Danish even though Danish groups with Swedish and English wrt. status of the expletive as subject. Maling (1988) focuses on the exclusion of agent and experiencer roles in there-constructions, and as the Danish data will show, her constraint will be required to also include possessor. In contrast, we will focus on the presence of a theme subject being located in a state. Cf. also Ekberg (1990) who insists on the presence of a theme in her analysis of intransitive verbs in there-constructions.

3 Transitive there-insertion verbs

In Danish most transitive verbs do not appear in there-constructions, as shown in (21).

- (21) a. *Der spiste æblet en mand.
There ate apple-the a man

- b. *Der købte bogen en mand.
There bought book-the a man
- c. *Der hørte lyden en mand.
There heard sound-the a man
- d. *Der har bilen en mand.
There has car-the a man

As explained earlier, this can be seen as a consequence of the status of the Danish expletive as that of a subject which means that the logical subject must fill the direct object position instead. This, however, is not possible with transitive verbs which already have a direct object.

As we know now, we also find a group of Danish transitive verbs allowing there-insertion, cf. (22) and (23).

- (22) a. Der påhviler dem et ansvar.
There rests on them a responsibility
- b. Nu tilhørte der ham endnu et stykke af Addy.
Now belonged to there him another piece of Addy
- c. Der tilfaldt ham et klækkeligt honorar.
There fell to him a substantial fee
- d. Der tilkommer hende en godtgørelse.
There comes to her a compensation
- (23) a. Der mødte os et dejligt syn af røde, violette, gule og orange lamper.
There met us a lovely sight of red, violet, yellow and orange lamps
- b. Der greb hende et vanvittigt ønske om at flyve af sted gennem luften.
There grabbed her a crazy wish about to fly away through air-the
- c. Der venter publikum en hockey-oplevelse af de helt store.
There waits audience a hockey experience of the very big
- d. Der ramte ham en klam lugt af råddent kød.
There hit him a disgusting smell of rotten meat

3.1 Possessors as locations

We will begin by looking at the examples in (22). On the face of it, the examples contain theme + location/goal structures. Note that some of the verbs, e.g. *påhvile*, consist of a verb with a preposition prefix. However, it may be argued that what is really expressed is a possessor + theme structure, cf. e.g. Halliday (1994, p.

134) who notes that many languages express possession by location (circumstantial clauses in Halliday's terms). The examples may be paraphrased as in (24).

- (24) a. They have a responsibility.
 b. Now he had another piece of Addy.
 c. He received a substantial fee.
 d. She receives a compensation.

So what we have are possessor + theme structures expressed as theme + location structures. We assume that examples like (22c), (22d), (24c) and (24d) are complex events with a resulting state with a theme + location, (22c), (22d), or possessor + theme, (24c), argument structure.

Halliday (1994) terms this phenomenon "grammatical metaphors". The content of an expression is presented in terms of an event and argument structure which is not the "typical" event and argument structure. However, a theme + location argument structure used to express possession is not terribly marked compared to the possessor + theme structure.

Importantly, the argument structure used to express possession here involves a theme subject located in a state, explaining why they appear in there-constructions.

3.2 Experiencers as themes

The second group of examples, (23), involve a group of verbs with a different event and argument structure.

We will begin by looking at the verb *møde*, 'meet'. In (25) we show non-there examples of sentences with *møde*.

- (25) a. En opdagelsesrejsende møder en sovende bjørn.
An explorer meets a sleeping bear
 b. En ung Marie Fredriksson mødte den populære frontfigur i
A young Marie Frederiksson met the popular front figure in
popgruppen Gyllene Tider.
pop group-the Gyllene Tider
 c. Et dejligt syn af røde, violette, gule og orange lamper mødte os.
A lovely sight of red, violet, yellow and orange lamps met us

In (25a) and (25b) we have processes with an actor + theme structure². In (25c), we also have a process with an actor + theme structure on the surface. However, what is really expressed is an experience with an experiencer + theme structure. This is illustrated in (26).

- (26) A lovely sight of red, violet, yellow and orange lamps met us
 (≈ We saw lovely red, violet, yellow and orange lamps)

²We use "actor" in a broad sense.

Only the last example has a there-construction variant as shown in (27).

- (27) a. *Der møder en sovende bjørn en opdagelsesrejsende.
There meets a sleeping bear an explorer
- b. *Der mødte den populære frontfigur i popgruppen Gyllene
There met the popular front figure in pop group-the Gyllene
 Tider en ung Marie Fredriksson.
Tider a young Marie Fredriksson
- c. Der mødte os et dejligt syn af røde, violette, gule og orange
There met us a lovely sight of red, violet, yellow and orange
 lamper.
lamps

The verb *gribe*, ‘grab’, also appears in Danish there-constructions. In (28) we again find non-there examples.

- (28) a. En kvinde griber drengens arm.
A woman grabs boys-the’s arm
- b. En mand griber mikrofonen og råber og skriger fra afgang
A man grabs microphone-the and yells and screams from take-off
 til landing.
to landing
- c. Et vanvittigt ønske om at flyve af sted gennem luften greb
A crazy wish about to fly away through air-the grabbed
 hende.
her

In (28a) and (28b) we again find processes with an actor + theme structure. And again in the (28c) example we have a process with an actor + theme structure on the surface, but the content expressed is that of an experience with an experiencer + theme structure. This is again illustrated in (29).

- (29) A crazy wish about to fly away through air-the grabbed her
 (≈ She crazily wished to fly away through the air)

And as was the case for *møde*, ‘meet’, only the last example has a there-construction variant, as shown in (30).

- (30) a. *Der griber drengens arm en kvinde.
There grabs boy’s-the arm a woman
- b. *Der griber mikrofonen en mand og råber og skriger fra
There grabs microphone-the a man and yells and screams from
 afgang til landing.
take-off to landing

- c. Der greb hende et vanvittigt ønske om at flyve af sted
There grabbed her a crazy wish about to fly away
 gennem luften.
through air-the

The verbs *vente*, ‘wait’, and *ramme*, ‘hit’, exhibit the same behaviour, as the examples in (31) through (34) show.

- (31) a. En bus venter os.
A bus waits us
 b. En guide venter jer i Osaka Kansai Lufthavn.
A guide waits you in Osaka Kansai Airport
 c. En hockey-oplevelse af de helt store venter publikum.
A hockey experience of the very big waits audience
- (32) a. *Der venter os en bus.
There waits us a bus
 b. *Der venter jer en guide i Osaka Kansai Lufthavn.
There waits you a guide in Osaka Kansai Airport
 c. Der venter publikum en hockey-oplevelse af de helt store.
There waits audience a hockey experience of the very big
- (33) a. Endnu en storm ramte New Zealand.
Another storm hit New Zealand
 b. Et skud ramte Møller i brystet.
A shot hit Møller in chest-the
 c. En klam lugt af råddent kød ramte ham.
A disgusting smell of rotten meat hit him
- (34) a. *Der ramte New Zealand endnu en storm.
There hit New Zealand another storm
 b. *Der ramte Møller et skud i brystet.
There hit Møller a shot in chest-the
 c. Der ramte ham en klam lugt af råddent kød.
There hit him a disgusting smell of rotten meat

The verbs discussed in this section basically have an actor + theme argument structure. However they can be used to express experience as the c. examples have shown. Again we have an example of a grammatical metaphor.

More examples of there-constructions with such verbs are given in (35).

- (35) a. Der mødte mig et syn, jeg aldrig glemmer.
There met me a sight, I never forget
 (≈ I saw something, I will never forget)

- b. Der ventede hende en grim overraskelse.
There waited her an ugly surprise
 (≈ She would be nastily surprised)
- c. Når vi var ude sammen, greb der hende en heftigere og
When we were out together, grabbed there her an intenser and
 heftigere uro.
intenser uneasiness
 (≈ When we were out together, she got more and more intensely un-
 easy)

The examples in (35) differ from the experience examples in (23). In both (35) and (23) the mental state is nominalized and appears as an argument of the verb. However, in (35) the stimulus of the mental experience is not explicitly expressed. The NP representing the experience argument has a noun representing the experience as the head. e.g. *a sight* or *an intenser and intenser uneasiness*. In (23) this noun is further modified, expressing the stimulus of the experience, e.g. *a lovely sight of red, violet, yellow and orange lamps* or *smell of rotten meat*.

Expressing experiences as actor + theme structures does not give us an event and argument structure which meets our there-insertion constraint. There is no theme subject located in a state.

4 Experiencers as locations

In this section we suggest that the effect of representing experiencers as themes of actor + theme structures really has the effect that the experiences are understood locatively.

We follow e.g. Bouchard (1995) and Landau (2005) in suggesting that experiencers are “mental locations”. In (23) and (35), as mentioned earlier, the mental state is nominalized and appears as the subject argument of the verb. The objects may be understood as mental location objects. The conceptualization is that a mental state is located in a mental location, cf. Landau (2005). Similarly, Bouchard (1995) proposes that experiences are conceptualized as a “contact” relation, the mental state is put in contact with the affected or mental location argument.

On our analysis, the theme subject which represents the experience or mental state is located at the ground object, the mental location, which represents the experiencer. On this locative analysis, the examples meet our there-insertion constraint in that we now have a theme subject located in a state.

The analysis puts focus on the affectedness of the experiencer, rather than the experiencer as a sentient being. There is little or no volition or control on the part of the experiencer.

We do not want to extend the mental location analysis to experiencer verbs. We restrict this analysis to verbs where the mental experience has been extracted and appears as an argument of a verb which is used metaphorically of an experience.

In (36) we give Danish examples of the often discussed fear/frighten verbs.

- (36) a. Superligaklub frygtede hackerangreb.
Super league club feared hacker attack
 b. Stød skræmte min hund.
Electric shock frightened my dog

To solve the linking problem that the same argument roles cannot be assigned to the same grammatical functions in the two examples, different argument structures have been proposed for the subject experiencer and object experiencer class of experiencer verbs. Pesetsky (1987) proposes that the subject of the object experiencer class has role “cause of emotion”, whereas the object of subject experiencer class has the role “target of emotion”, explaining why the experiencer is linked to the object in object experiencer verbs, as the “cause of emotion” outranks the experiencer role. Dowty (1991) assumes an approach where the experiencer role has both a proto-agent property (sentience) and a proto-patient property (change of state). This duality of the experiencer role explains why it may be linked to either subject or object with subject and object experiencer verbs respectively. Finally, Grimshaw (1990) introduces an aspectual dimension in addition to a thematic dimension. Object experiencer verbs are analyzed as psychological causatives. The argument linked to the subject has a cause role (aspectual dimension) as well as a theme role (thematic dimension). As aspectual prominence determines subject choice, the presence of the cause role which outranks the experiencer role, is responsible for the linking of the theme to the subject with object experiencer verbs.

Although we do not extend our analysis to these examples, they do not constitute a linking problem on our analysis. To explain the linking properties of this pair of verbs we analyze the *fear* example as describing a state with an experiencer subject and a theme object. The *frighten* example, on the other hand, is analyzed as being causative, cf. also Pesetsky (1987) and Grimshaw (1990). It is a complex event with an unspecified process involving the argument linked to the subject. The resulting state locates a theme argument, linked to the object, in a state, i.e. the property of being afraid. None of the examples involve the location of a theme subject in a state and so we do not find these verbs in there-constructions, as shown in (37).

- (37) a. *Der frygtede hackerangreb superligaklub.
There feared hacker attack super league club
 b. *Der skræmte min hund stød.
There frightened my dog electric shock

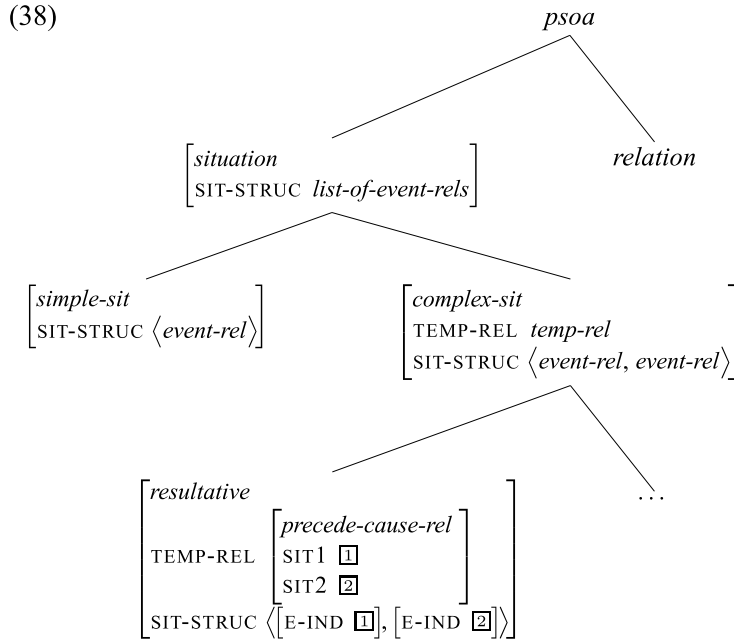
5 Formalization

In this section we will formalize the analysis of there-constructions proposed in the previous sections. We will introduce types to represent event and argument

structure in section 5.1. We will then show lexical representations of the verbs we have shown to appear in there-constructions in section 5.2. In section 5.3 we will show the constraint on there-insertion in the form of a lexical rule.

5.1 Event and argument structure

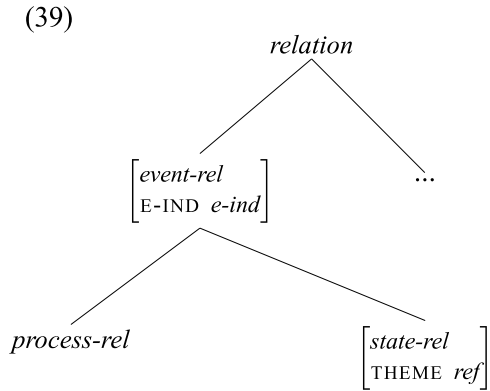
The formal analyses provided in this section are modifications of analyses presented in Bjerre (2003) and Bjerre and Bjerre (2007). The analyses in the previous sections are based on the assumption that verbs split into a number of semantic classes reflected in their event and argument structure. Verbs (or predicates) denote situations. Situations may be divided into simple situations, a process or a state, and complex situations, situations where a process results in another situation, in most cases a state. The idea of decomposing event structure goes back at least to Lakoff (1965) and McCawley (1968) and is employed in combination with the Vendlerian classification (Vendler, 1957) in Dowty (1979) and Levin and Hovav (1995) among many others. This is reflected in the type hierarchy in (38).



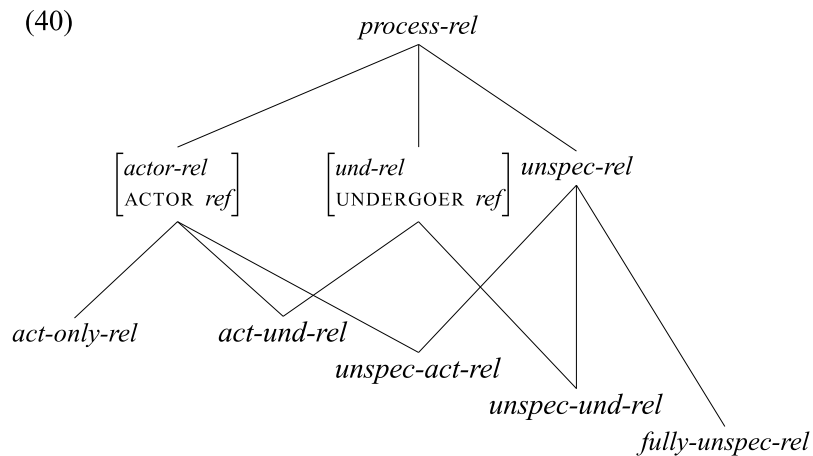
The situation structure of a *simple* situation is represented as a singleton list of event relations, cf. below. In a *resultative* situation the event structure is represented by a list of two event relations. The event relations are temporally ordered so that subsituation1 precedes and causes subsituation2.

We assume that semantic relations come with a fixed number of arguments. We are inspired by Davis (2001), though many details differ. Semantic roles are introduced as features on relations as shown in the hierarchies in (39), (40) and (41).

In (39) we can see that the type *event-rel* splits into a *process-rel* relation and a *state-rel* relation. The *state-rel* type introduces a THEME argument.

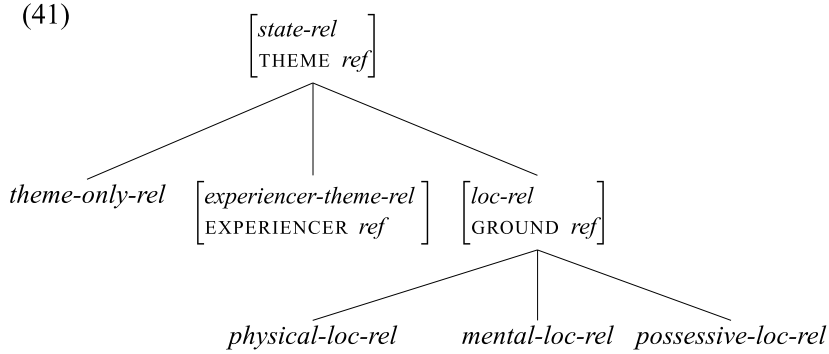


In (40) we can see how the *process-rel* type is subtyped and how an actor and an undergoer³ argument are introduced on subtypes of *process-rel*.



And finally, in (41) we can see how the *state-rel* type is subtyped and how a ground and an experiencer argument are introduced on subtypes of *state-rel*. Importantly, the *loc-rel* is subtyped into a *mental-loc-rel* relation and a *phys-loc-rel* relation accounting for the difference between physical locations and the mental locations we use to describe our metaphorical object experiencer verbs.

³We use the undergoer role in processes and the theme argument in states.

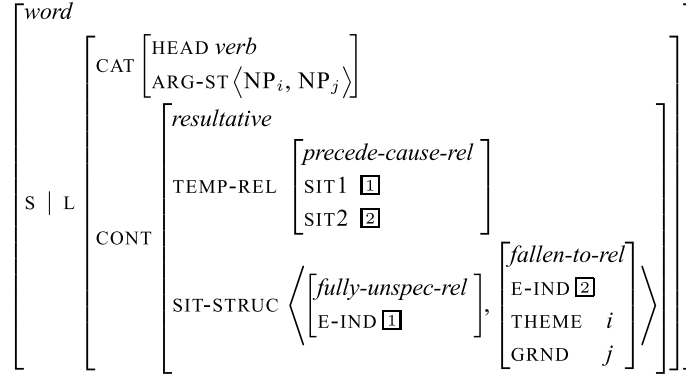


5.2 Lexical representation of transitive verbs allowing there-insertion

Based on the types for event and argument structure in (38) and in (39) through (41), lexical semantic representations for the verbs we have discussed earlier can be formulated. We will only formalize some of the verbs, as their entries will be similar.

As explained earlier we analyze the verb *tilfalde*, ‘fall to’, as a complex event. An unspecified process results in a state where a theme entity is located at a ground entity. This is formalized in (42).

(42) *tilfalde*, ‘fall to’



The resulting state is a *fallen-to-rel* relation which is a subtype of the *possessive-loc-rel* relation in the hierarchy in (41).

The verb *påhvile*, ‘rest on’, is analyzed as a simple situation, a state where a theme entity is located at a ground entity, as shown in (43).

(43) *påhviler*, ‘rest on’

$$\left[\begin{array}{c} \text{word} \\ \left[\begin{array}{c} \text{S} \mid \text{L} \\ \left[\begin{array}{c} \text{CAT} \left[\begin{array}{c} \text{HEAD verb} \\ \text{ARG-ST} \langle \text{NP}_i, \text{NP}_j \rangle \end{array} \right] \\ \text{CONT} \left[\begin{array}{c} \text{simple} \\ \text{SIT-STRUC} \left\langle \left[\begin{array}{c} \text{rest-on-rel} \\ \text{THEME } i \\ \text{GRND } j \end{array} \right] \right\rangle \end{array} \right] \end{array} \right] \end{array} \right] \end{array} \right]$$

The state is a *rest-on-rel* relation which is also a subtype of *possessive-loc-rel* relation in the hierarchy in (41).

In (44) we show the formalization of the verb *møde*, ‘meet’. The meaning of the verb is that resulting from an unspecified process, a mental state, the theme, is located in a mental location, the ground role.

(44) *møde*, ‘meet’

$$\left[\begin{array}{c} \text{word} \\ \left[\begin{array}{c} \text{S} \mid \text{L} \\ \left[\begin{array}{c} \text{CAT} \left[\begin{array}{c} \text{HEAD verb} \\ \text{ARG-ST} \langle \text{NP}_i, \text{NP}_j \rangle \end{array} \right] \\ \text{CONT} \left[\begin{array}{c} \text{resultative} \\ \text{TEMP-REL} \left[\begin{array}{c} \text{precede-cause-rel} \\ \text{SIT1 } \boxed{1} \\ \text{SIT2 } \boxed{2} \end{array} \right] \\ \text{SIT-STRUC} \left\langle \left[\begin{array}{c} \text{fully-unspec-rel} \\ \text{E-IND } \boxed{1} \end{array} \right], \left[\begin{array}{c} \text{met-rel} \\ \text{E-IND } \boxed{2} \\ \text{THEME } i \\ \text{GRND } j \end{array} \right] \right\rangle \end{array} \right] \end{array} \right] \end{array} \right]$$

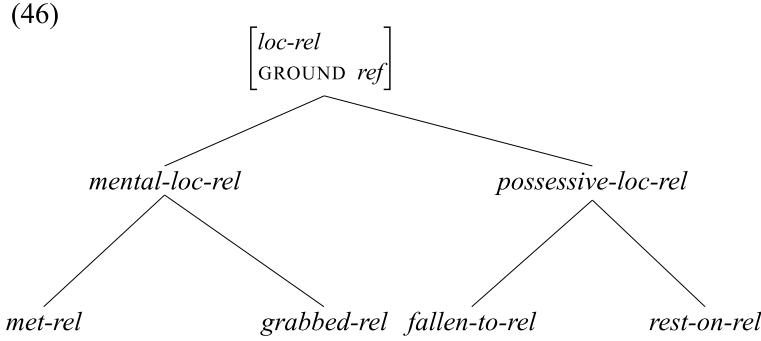
The *met-rel* relation is a subtype of the *mental-loc-rel* relation in the relation hierarchy.

The meaning of the verbs *gribe*, ‘grab’, is similar, as the formalization in (45) shows. The resulting state is again a *mental-loc-rel* relation.

(45) *gribe*, ‘grab’

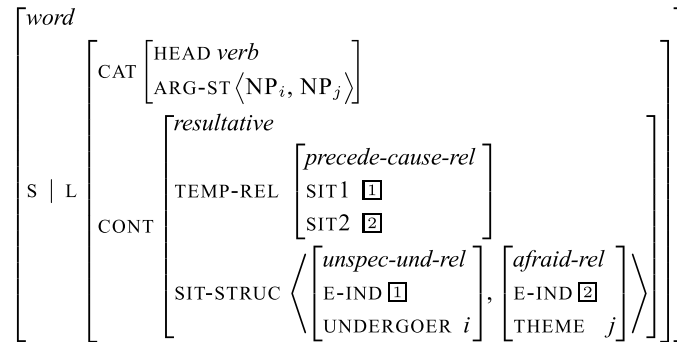
$$\left[\begin{array}{c} \text{word} \\ \left[\begin{array}{c} \text{S} \mid \text{L} \\ \left[\begin{array}{c} \text{CAT} \left[\begin{array}{c} \text{HEAD verb} \\ \text{ARG-ST} \langle \text{NP}_i, \text{NP}_j \rangle \end{array} \right] \\ \text{CONT} \left[\begin{array}{c} \text{resultative} \\ \text{TEMP-REL} \left[\begin{array}{c} \text{precede-cause-rel} \\ \text{SIT1 } \boxed{1} \\ \text{SIT2 } \boxed{2} \end{array} \right] \\ \text{SIT-STRUC} \left\langle \left[\begin{array}{c} \text{fully-unspec-rel} \\ \text{E-IND } \boxed{1} \end{array} \right], \left[\begin{array}{c} \text{grabbed-rel} \\ \text{E-IND } \boxed{2} \\ \text{THEME } i \\ \text{GRND } j \end{array} \right] \right\rangle \end{array} \right] \end{array} \right] \end{array} \right]$$

The hierarchy with the lexical relations as subtypes of the hierarchy in (41) is shown in (46).



We will also show the formalization of the object experiencer verb *skræmme*, ‘frighten’. As mentioned earlier, we do not extend the mental location analysis to this class of verbs. (47) shows the representation of the non-agentive variant of *skræmme*.

(47) *skræmme*, ‘frighten’



The meaning of this verbs is that an unspecified process involving a an undergoer, results in an *afraid-rel* relation. The *afraid-rel* relation is a subtype of the *theme-only-rel* relation in the hierarchy. The argument which is placed in the *afraid-rel* state is not linked to the first element of the ARG-ST list which will be mapped to the SUBJ valence list. This means that the entry does not meet our locative constraint which requires a subject theme located in a state.

5.3 The there-insertion lexical rule

Canonically, the elements on the ARG-ST list are distributed to the valence lists so that the first element appears on the SUBJ list and the remaining elements appear on the COMPS list of verbs. A lexical entry with the ARG-ST elements distributed to the valence lists may be the input to a there insertion lexical rule, as shown in (48)⁴.

⁴Lacking space, a number of more general constraints are represented together in (48).

$$(48) \left[\begin{array}{c} \text{there-insertion-lexical-rule} \\ \left[\begin{array}{c} \text{word} \\ \text{IN} \left[\begin{array}{c} \text{SYNSEM} \mid \text{LOC} \\ \text{CAT} \left[\begin{array}{c} \text{HEAD} \text{ verb} \\ \text{SUBJ} \langle \boxed{1} \text{NP}[\text{INDEF}]_i \rangle \\ \text{COMPS} \boxed{2} \end{array} \right] \\ \text{CONT} \left[\begin{array}{c} \text{situation} \\ \text{SIT-STRUC} \text{ list} \oplus \langle \left[\begin{array}{c} \text{state-rel} \\ \text{THEME } i \end{array} \right] \rangle \oplus \text{list} \end{array} \right] \end{array} \right] \end{array} \right] \\ \left[\begin{array}{c} \text{word} \\ \text{OUT} \left[\begin{array}{c} \text{SYNSEM} \mid \text{LOCAL} \mid \text{CATEGORY} \left[\begin{array}{c} \text{SUBJ} \langle \text{der} \rangle \\ \text{COMPS} \boxed{2} \oplus \langle \boxed{1} \rangle \end{array} \right] \\ \text{INFO-STRUC} \mid \text{TOPIC} \langle \rangle \end{array} \right] \end{array} \right] \end{array} \right] \end{array} \right]$$

(48) says that for any verb where an indefinite subject is linked to a theme argument in a state, there is a similar verb with *der*, ‘there’, inserted on the SUBJ list, and the logical subject appended to the COMPS list. Everything not explicitly mentioned in the rule is carried over unaltered from input to output. Note that it is assumed that the verb will end up in a topic-less clause.

6 Conclusion

In this paper we have addressed the question of which transitive verbs allow there-insertion in Danish. We have proposed that two constraints are involved in Danish there-constructions. Firstly, as have been noted by others, we need an empty direct object position constraint. To account for the transitive verbs allowing there-insertion, we have further proposed a “locative” constraint. The transitive verbs allowing there-insertion are verbs that allow a locative analysis. In this paper we have shown how verbs expressing possession and experience can be given a locative analysis, in this way they are shown to meet our locative constraint. We have provided a formalization of the proposal.

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