CREATING RAISING VERBS
An LFG-analysis of the Complex Passive in Danish

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Abstract

Raising configurations are sometimes described as the result of a diachronic process of semantic bleaching whereby an equi verb loses a semantic component of VOLITION. The verb is left with only a propositional argument in its argument structure and has to raise the subject of this embedded argument in order to fulfil a syntactic requirement that every predicator has a SUBJ ([Barron,1999]). Building on Barron's analysis, I argue that raising configurations may also arise as the result of argument structure operations and not just as the result of semantic changes. This means that verbs that are not otherwise raising verbs, may function as raising verbs if the right argument structure properties are present. Such a case is passivisation of verbs with propositional complements, where the most prominent argument is suppressed, leaving the verb with a propositional argument and no most prominent argument. The object of investigation is the Complex Passive in Danish.

1   Introduction

In Danish as in several other languages, verbs taking infinitival complements fall into two groups.[1] In the first group the subject of the matrix verb is not a thematic argument of the matrix verb, but a thematic argument of the embedded infinitival complement. These verbs are referred to as raising verbs. In the second group, the subject of the matrix verb is a thematic argument of the matrix verb as well as a thematic argument of the embedded infinitival complement. These verbs are referred to as control or equi verbs.[2] Several diagnostics distinguish these two groups: raising verbs may occur with an expletive subject while equi-verbs do not allow expletive subjects, equi-verbs license agent-oriented adverbials while raising verbs do not allow agent-oriented adverbs and raising verbs preserve the (non-compositional) meaning of idioms while equi-verbs crucially do not. In addition, the infinitival complements of these two classes of verbs also exhibit distinct syntactic behaviour as regards passivisation, topicalisation and substitutability with DP-objects.

As noted by several researchers the borders between raising and equi verbs are not clear. Verbs such as *begin* and *want* exhibit both raising and equi properties depending on the context. The topic of this paper is another case of fuzzy borders between raising and equi verbs: equi verbs that turn into raising verbs due to morpho-lexical operations altering the argument structure of the verbs.

While raising verbs do not passivise at all, equi-verbs in Danish allow two kinds of passives. Consider the examples below:

(1)   Peter forsøger at reparere bilen
        Peter is.trying to repair   the.car

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[2]In LFG the relation between an antecedent and a covert co-referential subject is termed control. This means that the relation between a raised constituent and a covert subject is also a relation of control. To avoid confusion, the group of verbs with infinitival complements and thematic subjects is referred to as equi-verbs and not control-verbs which is otherwise common in the literature.

(2) a.   at reparere bilen   forsøges / der   forsøges at reparere bilen
to repair   the.car is.tried / there is.tried   to repair   the.car

'as for repairing the car an attempt is made / an attempt is made to repair the car'[3]

b.   bilen   forsøges repareret
the.car is.tried   repaired

'as for the car, an attempt is made to repair it'

Example (1) shows the equi verb *forsøge* in the active construction. When the verb is passivised as in (2) two different kinds of passives are observed. The passive in (2a) follows the pattern of passivisation of transitive verbs: the (infinitival) complement raises to subject (the personal passive) or the (infinitival) complement retains its grammatical function and the passive matrix verb occurs with an expletive *der* 'there' (the impersonal passive).[4]

In example (2b), however, the internal argument of the embedded verb is raised to subject of the passive matrix verb while the verbal complement surfaces as a (passive) past participle. The passive in (2b) is referred to as the <u>Complex Passive</u>.

An analysis of the Complex Passive should account for two crucial features of this construction. In the Complex Passive an internal argument of an embedded verb is raised to subject of the passivised matrix verb. As we will see in the next section there is no corresponding active construction where the internal argument of the embedded verb surfaces as the object of the matrix verb. The construction thus appears to violate a locality condition since heads generally do not "have access to" the internal structure of their complements, in this case the arguments of the embedded verb. Secondly the analysis should account for the fact that the infinite complement of the Complex Passive is realized as a passive past participle while the active form of the matrix verb requires an infinitival complement. Moreover, an analysis of this construction should uncover the syntactic and semantic constraints on this construction, i.e it should uncover whether any particular constraints pertain to the matrix-verb and to the embedded verb, and it should uncover to what extent these constraints follow from the specific properties of the construction.

2   A first characterisation of the Complex Passive

The Complex Passive is complex in the sense that it is composed of two passive verbs: a passive matrix verb followed by one or more passive past participles. The matrix verb must be a verb selecting a verbal complement, i.e. it must select a propositional argument. As shown in the examples below, the matrix verb may appear in both the synthetic and the periphrastic passive with

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[3]Throughout the paper, the translation "as for X" is meant to indicate the topicality of a referential subject in the Complex Passive.

[4] Actually two kinds of impersonal passives are observed with either *der* 'there' or *det* 'it'. The exact analysis of these two kinds of impersonal passive is unclear. The passive with *there* appears to be an instance of a presentational *there*-sentence. Intransitive verbs may appear in presentational *there*-sentences with an indefinite postverbal complement. Passive verbs with sentential complements are intransitive and given that sentential complements do not carry definiteness, the verbs may appear in a presentational *there*-sentence. The impersonal passive with *det* 'it' on the other hand appears to be an instance of extraposition of a clausal complement. However, the exact analysis is not of immediate concern here.

the semantic and pragmatic differences observed for these two passive forms ([Engdahl, 1999]). Interestingly, if one of the embedded participles is itself a verb selecting a verbal complement as the verb *forsøge* 'to try' in (5) below, a further passive past participle may occur as its complement, thus giving rise to a (in principle infinite) recursive embedding.

(3)   bilen   forsøges repareret
         the.car is.tried   repaired
         'as for the car an attempt is made to repair it'

(4)   bilen   blev forsøgt repareret
         the.car was tried   repaired
         'as for the car, an attempt was made to repair it'

(5)   bilen   blev lovet   forsøgt repareret
         the.car was promised tried   repaired
         'as for the car, a promise was made to try to repair it'

On the basis of the examples in (3) through (5) the Complex Passive may be schematically depicted as in (6) below ([Hellan, 2001]): A passive verb followed by at least one passive past participle.

(6)   SUBJECT V_{pass} (synthetic or periphrastic) $V_{pastpart\_passive}+$

Crucially, the Complex passive has to be distinguished from the superficially similar construction of a passivised ECM-construction (subject-to-object raising). Consider the example in (7). The construction conforms to the schematic characterisation of the Complex Passive above: a passive matrix verb followed by a passive past participle. However, the example in (7) does have an active counterpart where the subject of the passive verb *forvente* 'to expect' surfaces as the object of the matrix verb followed by a passive past participle. The relevant example of the active construction is given in (8).

(7)   forslaget   forventes vedtaget
         the.proposal is.expected adopted
         'the proposal is expected to be adopted'

(8)   man forventer forslaget   vedtaget
         you expect   the.proposal adopted
         'everyone is expecting the proposal to be adopted'

The apparent Complex Passive in (7) may thus be derived by raising of the object to subject as in the canonical case of a passivised transitive verb. For this reason there is nothing special about the passivisation in this case. However, the true Complex Passive does not have an active counterpart where the subject of the Complex Passive surfaces as an object followed by a passive past participle as shown below.

(9)   * Peter forsøger bilen   repareret
         Peter tries   the.car repaired
         'Peter is trying to repair the car'

Since verbs such as *forvente* 'to expect' do have an active counter-part, I do not consider examples such as (7) Complex Passives. A Complex Passive is thus a syntactic construction conforming to the schematic characterization given in (6) for which there is no active counterpart where the subject surfaces as an object of the active matrix verb followed by a passive past participle.

3   A closer look at the Complex Passive

The Norwegian Complex Passive has been extensively discussed in the literature ([Hellan, 2001, Engh, 1995, Nordgård and Johnsen, 2000]). It even occupies a whole section in the Norwegian Reference Grammar ([Faarlund et al., 1997]). For some reason the Complex Passive in Danish does not seem to have been discussed at all and it is not even mentioned in the traditional grammars of Danish ([Diderichsen, 1957, Robin Allan and Lundskær-Nielsen, 1995, Hansen, 1967]). Due to the lack of previous discussions of the Complex Passive in Danish, I will draw heavily on the accounts of the Norwegian Complex Passive. Interestingly there turn out to be significant differences between the construction in the two languages.

Also due to the lack of comprehensive studies of the Complex Passive in Danish, the present analysis is based on an extensive corpus investigation of the syntax of verbs selecting sentential complements. Approximately 125 verbs with sentential complements were randomly selected. All verbs were searched in Korpus2000[5] and on Danish web-pages (through Google) and analysed in their syntactic context. For each verb the following properties were recorded: complementation in the active, ability to occur with an expletive subject in the active, ability to form personal and impersonal passive, ability to occur with an ECM-construction and ability to form the Complex Passive. Also information on complementisers heading finite complements was recorded. All results were stored in a database and the following discussion is based on the main findings of this investigation as regards the Complex Passive.

3.1   Constraints on the matrix verb

Of the approximately 125 investigated verbs with sentential complements (supplemented with occasionally observed verbs forming Complex Passives), 12 verbs form the Complex Passive. The constraints on these verbs emerging from the data are presented below.

Obligatory control verbs The matrix verbs forming the Complex Passive are obligatory control verbs in the sense of [Culicover and Jackendoff, 2005]. The verbs select infinitival complements, denoting controlled actions. Both subject and object control verbs form the Complex Passive as shown below where representative samples of the Complex-Passive-forming verbs are given.

- Subject control verbs: *forsøge* 'to try, *agte* 'to intend', *simulere* 'to pretend' ...

- Object control verbs *bede* 'to ask to', *pålægge* 'to force to', *forbyde* 'to forbid' ...

[Holmberg, 2002] arrives at a different generalisation concerning the verbs forming Complex Passives in Norwegian. He claims that verbs forming the Complex Passive are restructuring verbs taking a somehow reduced or defective sentential complement. A property of this class of verbs is that they license non-thematic subjects also in the active as shown in (10) for the Danish verb *forsøge* 'to try'.

(10) der   forsøgte at komme mange med bussen
      there tried   to come   many   with the.bus
      'many people tried to get on the bus'

However, this property appears to be an exception, rather than a defining characteristic of the verbs forming the Complex Passive. The majority of the other verbs do not allow non-thematic subjects in the active.

(11) * der   agter   at oprette mange en ny   forening
      there intends to found   many   a   new association
      'many people intend to try to found a new association'

(12) * der   pålægger regeringen   at indføre   nye afgifter
      there forces   the.government to introduce new taxes
      'someone is forcing the government to introduce new taxes'

While it does seem to be the case that one of the most frequent verbs forming the Complex Passive, namely the verb *forsøge* 'to try' may exhibit a raising-like behaviour in the active, there is no indication that this property is somehow related to the ability to form Complex Passives. As a matter of fact it appears to be an exception.

Verbs selecting infinitival complements The verbs forming the Complex Passive select an infinitival complement headed by a *to*-infinitive. Only one verb *bede* 'to ask' combines with a bare infinitive. [6]

(13) de   beder ham flytte   bilen
      they ask   him to.remove the.car

(14) bilen bedes   flyttet
      the.car is.asked removed
      'please remove the car'

Interestingly many obligatory control verbs in Danish select infinitival complements marked by a semantically vacuous preposition. Cf. the examples given below.

(15) der satses   på   at gennemføre konkurrencen
      *there is.aimed at.*PREP *to complete   the.contest*
      'the intention is to complete the contest'

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[6]Lars Heltoft (p.c.) points out that passive *bedes* 'is asked' does not behave as a passive full verb. Rather it appears to have developed into a kind of modal marker for politeness. On this analysis the verb may be excluded from the verbs forming the Complex Passive and the appropriate generalization is that verbs forming the Complex Passive combine with *to*-infinitives.

(16) de advarer mod   at forsøge at reparere bilen
      they warn   against to try   to repair   the.car
      'they warn against trying to repair the car'

Verbs selecting infinitival complements marked by prepositions are systematically excluded from occurring in the Complex Passive ([Christensen, 1986, Hellan, 2001]):

(17) * konkurrencen satses   på   gennemført
      *the.contest   is.aimed at.*PREP *completed*
      'the intention is to complete the contest'

(18) * bilen   advares   mod   forsøgt repareret
      *the.car is.warned against.*PREP *tried   repaired*
      'there is a warning against trying to repair the car'

In section 4, I show how this falls out of the analysis of the Complex Passive as a raising construction.

Verbs with an agentive subject Verbs taking controlled actional complements and experiencer subjects do not form the Complex Passive, even though the verbs do passivize when combining with sentential or nominal complements.[7]

(19) a. de lokale helte   blev glemt
          the local   heroes were forgotten

      b. det blev glemt   at checke motoren
          it was forgotten to check   the.engine
          'As for the engine, it was forgotten to check it'

      c. * bilen   blev glemt   repareret
          the.car was forgotten repaired
          'As for the car, it was forgotten to repair it'

3.2   Constraints on the verbal complement

After having uncovered the constraints on the matrix verb in the Complex Passive, we next turn to the constraints on the verbal complement.

Only embedded participles It is a defining characteristic of the Complex Passive that the second passive form is a past participle. Infinitival complements are excluded even though the active verb selects an infinitival complement, cf. the discussion in section 3.1.[8]

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[7][Holmberg, 2002] attributes this constraint to the fact that psychological state predicates are typical non-restructuring verbs. However, as shown above restructuring does not appear to be a necessary condition for the formation of Complex Passives in Danish. In addition, Holmberg uses the verb *hade* 'to hate' as illustration. But this verb is independently ruled out from occurring in the complex passive since it does not passivise at all when combining with a sentential complement. So even if there is a correlation between taking an experiencer subject and being a non-restructuring verb, it has not been established that this correlation has any influence on the ability to form the Complex Passive.

[8]The restriction against infinitival complements seems to be subject to some variation. This may be due to the fact that controlled verbal complements may be either infinitival or participial.

(20) ??/* bilen   forsøges at blive repareret
      the.car is.tried to be   repaired

      'as for the car, an attempt is made to repair it'

Only participles with a suppressed argument position In his discussion of the Complex Passive in Norwegian, [Hellan, 2001] notes that the class of participles occurring in the Complex Passive is co-extensive with the class of participles with <u>unaccusative</u> subjects, i.e. passivised transitive verbs and participles of unaccusative verbs. On Hellans account passivised unergative verbs are excluded from the Complex Passive.

A very different picture of the Complex Passive emerges from the Danish data. The Complex Passive is possible with passivised transitive verbs (21a), passivised transitive verbs with expletive subjects (21b), passive unergative verbs (21c) and passive unergative verbs with prepositional complements (21d).

(21) a. bilen   forsøges repareret
          the.car is.tried   repaired

          'as for the car an attempt is made to repair it'

      b. der   forsøges repareret en bil
          there is.tried   repaired a   car

          'an attempt is made to repair a car'

      c. der   forsøges løbet
          there is.tried   run

          'an attempt is made to run'

      d. der   forsøges indrapporteret på en ikke-eksisterende medarbejder
          there is.tried   reported   on a non-existing   employee

          'an attempt is made to report on a non-existing employee'

The fact that the Complex Passives allows intransitive unergatives shows that these participles are not instances of Adjectival Passive Formation ([Levin and Rappaport, 1986]). The participles in (21c) and (21d) may not occur prenominally as shown below. In addition, the participles observed in the Complex Passives generally do not allow *un*-prefigation (24).

(22) * en løbet mand
      a run   man

(23) * en indrapporteret på medarbejder
      a reported   on employee

(24) * en urepareret bil
      an unrepaired car

Excluded from the Complex Passive are active past participles, i.e. the past participles used to form the perfect tense as in *han har læst bogen* 'he has read the book', example (25), and participles based on unaccusative verbs, example (26) (contrary to Norwegian).

(25) * Peter forsøges læst bogen
      Peter is.tried   read the.book

      'Someone is trying to make Peter read the book'

(26) * Peter forsøges omkommet
      Peter is.tried   died

      'someone is trying to make Peter die'

Participles based on unaccusative verb as in (26) may be excluded on semantic grounds. Unaccusative verbs generally do not denote controlled actions and consequently they cannot be embedded under verbs with obligatory control. However, the constraint may also be stated in purely syntactic terms to the effect that the participle must contain a suppressed argument position. In section 5, I show how this restriction follows from the interaction between the semantics of equi-verbs and raising.

3.3   Further properties of the Complex Passive

The subject of the matrix verb is the subject of the most embedded participle As already hinted at in the introduction, the subject of the Complex Passive is the subject of the embedded participle. A clear indication of this is that the subject must meet the selectional restrictions imposed by the embedded participle on its subject. A further indication is the behaviour of embedded postverbal objects in the presence of an expletive subject as in (27a) and (27b). In example (27a) the subject of the Complex Passive is the expletive *der* 'there'. Expletive subjects occur with passivised unergative verbs, and with passivised transitive verbs. However, in the presence of an expletive subject, the object of the passive verb has to be indefinite (the well-known definiteness effect of *there*-sentences). The same restriction is observed in the Complex Passive as shown in example (27b). Here the object has to be indefinite as expected if the expletive subject of the matrix verb is the subject of the embedded participle.

(27) a.   der   forsøges repareret en bil
            there is.tried   repaired a   car

            'an attempt is made to repair a car'

      b. * der   forsøges repareret bilen
            there is.tried   repaired the.car

            'an attempt is made to repair the car'

The "raised" constituent cannot stop half-way The "raised" constituent has to raise to the subject of the top-most matrix verb. This property follows from the complementation properties of the matrix verb. In (28), the verb *love* 'to promise' does not subcategorise a non-thematic object in addition to an expletive subject, thus example (28) violates COHERENCE.

(28) * der   loves   en bil forsøgt repareret
        there is.promised a   car tried   repaired

      'a promise is made about the car to repair it'

The Complex Passive exhibits Unit Accentuation (destressing of main verb) An interesting characteristic of the Danish Complex Passive is that it exhibits Unit Accentuation, i.e. destressing of the main verb. In (29a) the main verb *forsøge* 'to try' carries stress on the second syllable. In (29b) the main verb is destressed and the two verbs form a single stress group with the main stress on the participle. Unit Accentuation is a phonological characteristic of syntactic noun incorporation ([Asudeh and Mikkelsen, 1999, Thomsen, 1992]) and seems to suggest that the Complex Passive is some kind of complex predicate. Cf. however the discussion in section 4.

(29) a. de $_o$for'søgte at $_o$re$_o$pa'rere bilen
they tried   to repair   the.car

b. bilen   blev $_o$for$_o$søgt $_o$re$_o$pa'reret
the.car was tried   repaired

'as for the car, an attempt was made to repair it'

The Complex Passive may (marginally) occur in prenominal position The accounts of the Complex Passive in Norwegian ([Hellan, 2001, Nordgård and Johnsen, 2000]) all note that the Complex Passive may occur in prenominal position as exemplified in (30). This is not attested in Danish and (30) appears to be marginal.

(30) ?? en forsøgt stjålet bil
a tried   stolen car
'a car that someone had tried to steal'

4   The GF of the non-finite complements

Evidence from the separability of the verbs and scrambling shows that equi-verbs do not form complex predicates in Danish as opposed to the analysis of German equi-verbs in [Müller, 2002]. The same diagnostics apply to the Complex Passive. Further evidence pertaining solely to f-structure properties is the possibility of having two subcategorized GFs in equi-constructions and Complex Passives as shown below.

(31) dommen   påbyder regeringen   at give firmaerne   pengene tilbage
the.verdict orders   the.government to give the.companies the.money back

'the.verdict orders the government to pay back the money to the companies'

(32) den gule   stjerne blev af nazisterne påbudt båret   af alle jøder
the yellow star   was by the.nazis ordered carried by all jews

'as for the yellow star, it was a requirement of the nazis that it be born by all jews'

Depending on the analysis of the first post-verbal DP, the f-structure of example (31) would contain two OBJs or two OBJ2s if the equi-verb formed a complex predicate with its verbal complement. Similarly, the f-structure of (32) would violate uniqueness by containing two OBL$_{ag}$ if it were a complex predicate. Furthermore, adjuncts may scope over the invidual parts of the complex passive which is unexpected if they formed a complex predicate at f-structure.

(33) patienten forsøges nu   opereret i morgen
      the.patient is.tried   now operated tomorrow

      'someone is now trying to have the patient operated tomorrow'

Examples such as (31), (32) and (33), however, are expected on an analysis of equi-verbs and the Complex Passive as bi-clausal structures. Thus, even though Unit Accentuation generally is taken to be an indication of syntactic incorporation e.g. in [Thomsen, 1992, Asudeh and Mikkelsen, 1999], there is no syntactic evidence to support an analysis of the Complex Passive as a complex predicate.

The next step is to determine the GF of the verbal complements of equi-verbs and the Complex Passive. Following [Dalrymple and Lødrup, 2000, Lødrup, 2004], I assume that sentential complements may be either OBJs or (X)COMPs. Turning first to active equi verbs, we see that the infinitival complement alternates with a DP-object (34b), it participates in Unbounded Dependency Constructions (34c) and it may raise to SUBJ in passives (34d). The infinitival complement of active equi-verbs is thus an OBJ on the diagnostics of [Dalrymple and Lødrup, 2000, Lødrup, 2004].

(34) a. de   forsøger at gennemføre konkurrencen
          they try   to complete   the.contest

      b. de   forsøger det
          they try   it

      c. at gennemføre konkurrencen har   de   forsøgt
          to complete   the.contest   have they tried

          'as for completing the contest, they have tried to do so'

      d. at gennemføre konkurrencen blev forsøgt
          to complete   the.contest   was tried

          'as for completing the contest, it was tried to do so'

Turning to the non-finite complement of the Complex Passive, the past participle, we see that it behaves as an XCOMP on the diagnostics of [Dalrymple and Lødrup, 2000, Lødrup, 2004]. It does not alternate with a DP-object (35b) and it does not participate in Unbounded Dependency Constructions (35c).[9]

(35) a. bilen   forsøges repareret
          the.car is.tried   repaired

          'as for the car, an attempt is made to repair it'

      b. * bilen   forsøges det
            the.car is.tried   it

          'as for the car, an attempt is made to do so'

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[9]The last diagnostic concerning the ability to occur as a SUBJ in passives, is not applicable since the verb is already in the passive.

c. * repareret forsøges bilen
   repaired   is.tried   the.car

   'as for repairing, an attempt is made concerning the car'

The analysis of the participle in the Complex Passive as an XCOMP straightforwardly accounts for the fact that equi-verbs verbs with prepositional complements do not form Complex Passives: prepositions take OBJ and not XCOMP. A similar idea is presented in [Christensen, 1986]. Working within a derivational framework, Koch Christensen assumes that prepositions have to be able to assign case and a past participle cannot receive case. On the account presented here example (36) is ruled out since the preposition selects an OBJ and not an XCOMP.

(36)   * bilen   satses   på repareret
       the.car is.aimed at repaired

       'as for the car, efforts are made to repair it'

If the Complex Passive were a complex predicate, the impossibility of (36) would be unexplained. Actually (36) should be possible like other pseudo-passives.

(37)   børnene   passes   på
       the.children are.taken.care of

4.1   Functional and Anaphoric control

LFG recognizes two different kinds of control: anaphoric and functional control ([Bresnan, 1982, Bresnan, 2001, Dalrymple, 2001]). Anaphoric control is a relation of semantic co-indexing between a controller and a covert pronominal subject in the f-structure. Functional control, on the other hand, is a relation of token-identity between the controller and the controlled subject. In anaphoric control, the controller may be absent (38), the construction allows split antecedents (39) and the controller may be realized by a semantically restricted GF (in this case an OBL_{ag}) (40).

(38)   der   blev forsøgt at bygge en bro
       there was tried   to build a bridge

       'an attempt was made to build a bridge'

(39)   regeringen   forsøger sammen med oppositionen   at afvikle   debatten
       the.government tries   together with the.opposition to conduct the.discussion
       i fællesskab
       together

       'the governement tries to conduct a joint discussion with the opposition'

(40)   ? det blev forsøgt af regeringen   at få   forslaget   vedtaget
       it   was tried   by the.government to have the.proposal adopted

       'an attempt was made by the government to have the proposal adopted'

Languages with personal and impersonal passives, such as Danish, provide a further diagnostic for distinguishing anaphoric and functional control. Personal passives have thematic subjects and impersonal passives have non-thematic subjects. Since an anaphorically controlled infinite complement contains a PRED-bearing subject we predict that only personal passives are allowed in anaphorically controlled complements. If an anaphorically controlled complement contains an impersonal passive, the PRED-bearing SUBJ is not assigned a semantic role in violation of COHERENCE. This prediction is borne out as shown in the examples below along with the corresponding f-structures.

(41) a. det forsøges [at blive optaget i unionen]
          it is tried [to be admitted into the.union]
          'an attempt is made to be admitted into the union'

$$\begin{bmatrix} \text{PRED 'ADMIT} \langle \text{SUBJ,OBL}_{goal} \rangle \text{'} \\ \text{SUBJ} \begin{bmatrix} \text{PRED 'PRO'} \end{bmatrix} \\ \text{OBL}_{goal} \begin{bmatrix} \text{"UNION"} \end{bmatrix} \\ \text{VOICE PASS} \end{bmatrix}$$

      b. * det forsøges [at arbejdes/blive arbejdet]
          it is.tried [to be worked]

$$*\begin{bmatrix} \text{PRED 'WORK} \langle \rangle \text{SUBJ'} \\ \text{SUBJ} \begin{bmatrix} \text{PRED 'PRO'} \end{bmatrix} \\ \text{VOICE PASS} \end{bmatrix}$$

In functional control, the controller is obligatory (42) and no split antecedents are allowed (43). In (42) the expletive *det* 'it' cannot be a controller of the SUBJ of *repareret* 'repaired' since *det* 'it' is used in extraposition constructions and not in presentational sentences.

(42)   * det forsøges repareret
         it is.tried repaired (only possible with it as a referential pronoun)
         'an attempt is made to repair'

(43)   ?? bilen forsøges sammen med cyklen repareret samtidigt
         the.car is.tried together with the.bike repaired at.the.same.time
         'someone is trying to repair the car and the bike at the same time'

Since in functional control the infinite complement does not contain a pronominal subject in the f-structure, impersonal passives are allowed (provided that the controller is an expletive pronominal). Example (44) shows an active raising verb with a verbal complement containing an impersonal passive, and example (45) shows a Complex Passive construction containing an impersonal passive in the complement.

(44)   der plejer at blive gjort rent om mandagen
         there uses to be cleaned on Monday
         'usually cleaning is on Monday'

(45) der forsøges arbejdet
there is.tried worked

'an attempt is made to work'

$$\begin{bmatrix} \text{PRED 'WORK} \langle \rangle \text{SUBJ'} \\ \text{SUBJ} \begin{bmatrix} \quad \end{bmatrix} \end{bmatrix} \text{(simplified)}$$
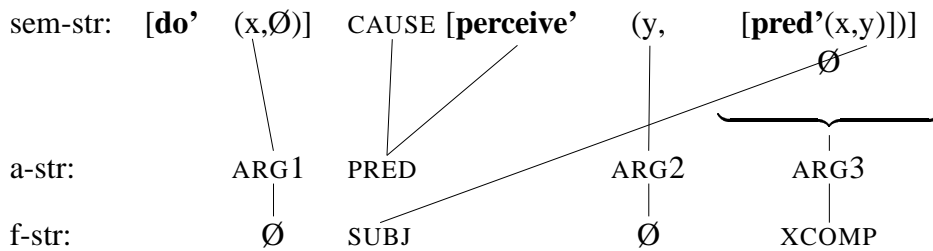
On the basis of the discussion above we may thus conclude that active equi verbs select anaphorically controlled objects, while the complex passive is a raising construction with a functionally controlled XCOMP.

5   Equi-verbs to raising verbs: an argument structure account

[Barron, 1999] presents a semantically based account of the development of the English raising verb *seem* from the Middle English equi-verb *semen* meaning 'to pretend'. On Barron's analysis the equi-verb is de-causativised, i.e. it looses the semantic component of "to do something" due to a process of semantic bleaching. Loosing this semantic component of volitional action, the verb also loses its most prominent argument and consequently its SUBJ. In order to fulfil the subject condition the verb raises the subject of the embedded complement giving rise to the raising verb *seem* of modern English.

The crucial claim here is that equi verbs may also turn into raising verbs due to operations on the argument structure without any shift in semantics. Cf. the example in (46) below. The semantic representation for the verb *simulere* 'to simulate' follows the account given in ([Barron, 1999]): someone performs some unspecified action which causes someone to perceive as if X performs some other action. The argument of the semantic component of DO maps to the ARG1 of the argument structure, while the unspecified receiver maps to ARG2. The embedded predicate in turn maps to ARG3. The ARG1 of the argument structure is suppressed due to passivisation, and the ARG2 is demoted or suppressed entirely ([Barron, 1999], p. 202). Given that there is no most prominent argument mapping to SUBJ, the verb raises the subject of the embedded predicate in order to fulfil the subject condition ([Bresnan, 2001]). The crucial claim is thus that suppression of the most prominent argument creates the canonical argument structure of a raising configuration, a verb with a propositional argument and no most prominent argument mapping to subject.

(46) han simuleres henrettet
he is.simulated executed

'As for him, his execution is simulated'

sem-str: [**do'** (x,Ø)] CAUSE [**perceive'** (y, [**pred'**(x,y)])]
                                                   Ø

a-str: ARG1   PRED   ARG2   ARG3

f-str: Ø   SUBJ   Ø   XCOMP

5.1 Linking the passives of equi-verbs

Recall from section 1 that equi verbs allow two kinds of passives, the canonical passive and the complex passive. In this section we will have a look at the linking of these various passives. The active equi verb is a verb with obligatory anaphoric control as shown above. The linking for the example in (47) is depicted below: The agent maps to SUBJ, the propositional argument to OBJ (cf. the discussion of the grammatical function of the verbal complements in section 4) giving rise to a lexical entry requiring a SUBJ and an OBJ where the PRED-value of the embedded SUBJ is specified as 'PRO' (anaphoric control).

a-str ⟨ [ag]   [prop] ⟩ ⟹ ⟨ SUBJ OBJ ⟩
              | | (↑ OBJ SUBJ PRED) = 'PRO'
            SUBJ   OBJ

(47) Peter forsøger at reparere bilen
      Peter tries   to repair   the.car
      'Peter is trying to repair the car'

$$
\begin{bmatrix}
\text{PRED} & \text{'TRY⟨ SUBJ OBJ ⟩'} \\
\text{SUBJ} & [\text{"PETER"}] \\
\text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'REPAIR⟨ SUBJ OBJ ⟩'} \\ \text{SUBJ} & [\text{PRED 'PRO'}] \\ \text{OBJ} & [\text{PRED 'CAR'}] \end{bmatrix} \\
\text{VOICE} & \text{ACT} \\
\text{TENSE} & \text{PRES}
\end{bmatrix}
$$

The linking of the canonical passive follows the general pattern of passivisation of transitive verbs. The most prominent argument is suppressed and the propositional complement may map to SUBJ. Alternatively the object retains its GF and the verb occurs with a non-thematic SUBJ (cf. the discussion in footnote 4). In both cases the passive exhibits anaphoric control giving rise to the lexical entries shown on the right-hand side of the arrow.

a-str: ⟨ [ag]   [prop] ⟩ ⟹ { ⟨ SUBJ ⟩
              | | (↑ SUBJ SUBJ PRED) = 'PRO' |
             Ø   SUBJ/OBJ   ⟨ OBJ ⟩ SUBJ
                                       (↑ OBJ SUBJ PRED) = 'PRO' }

Examples of the canonical passive are given in (48)

(48)   a.   at finde en løsning forsøges
                to find   a   solution is.tried

                'as for finding a solution, an attempt is made to do so'

      b.   der   forsøges at finde en løsning
                there is.tried   to find   a   solution

                'an attempt is made to find a solution'

$$
\begin{bmatrix}
\text{PRED} & \text{'TRY}\langle\,\text{OBJ}\,\rangle\,\text{SUBJ'} \\
\text{SUBJ} & \big[\text{PRON-TYPE EXPLETIVE}\big] \\
\text{OBJ} & \begin{bmatrix}
\text{PRED} & \text{'FIND}\langle\,\text{SUBJ OBJ}\,\rangle \\
\text{SUBJ} & \big[\text{PRED 'PRO'}\big] \\
\text{OBJ} & \big[\text{PRED 'SOLUTION'}\big]
\end{bmatrix} \\
\text{VOICE} & \text{PASS} \\
\text{TENSE} & \text{PRES}
\end{bmatrix}
$$

Finally we turn to the linking of the Complex Passive. Again the most prominent argument is suppressed creating a canonical argument structure of a raising construction. Raising configurations contain functionally controlled XCOMPs so the propositional argument maps to an XCOMP with functional control as shown below.

a-str: $\langle \;\; [\,\text{ag}\,] \;\; [\,\text{prop}\,] \;\; \rangle \;\; \Longrightarrow \;\; \langle\,\text{XCOMP}\,\rangle\,\text{SUBJ}$
                  | | $(\uparrow\text{SUBJ}) = (\uparrow\text{XCOMP SUBJ})$
               Ø   XCOMP $(\uparrow\text{XCOMP VFORM})=_c \text{PASTPART}$
                                  $(\uparrow\text{XCOMP VOICE}) =_c \text{PASS}$

An example of the complex passive is given in (49) below.

(49)   konkurrencen forsøges gennemført
           the.contest   is.tried   completed

           'as for the contest, an attempt is made to complete it'

$$
\begin{bmatrix}
\text{PRED} & \text{'TRY}\langle\,\text{XCOMP}\,\rangle\,\text{SUBJ'} \\
\text{SUBJ} & \big[\text{PRED 'CONTEST'}\big] \\
\text{XCOMP} & \begin{bmatrix}
\text{PRED} & \text{'COMPLETE}\langle\,\text{SUBJ}\,\rangle\text{'} \\
\text{SUBJ} & [\;\;] \\
\text{VFORM} & \text{PASTPART} \\
\text{VOICE} & \text{PASS}
\end{bmatrix} \\
\text{VOICE} & \text{PASS} \\
\text{TENSE} & \text{PRES}
\end{bmatrix}
$$

However, the analysis of the complex passive as a raising construction does not explain the presence of the two constraining equations in the lexical entry above, i.e. that the XCOMP be a past participle, and that the XCOMP be passive. As a matter of fact, this latter fact is rather puzzling since raising constructions do not otherwise impose restrictions on the voice of their embedded complement.

5.2 Deriving the constraints on the XCOMP of the Complex Passive

Passivisation avoids raising of a bound variable The Complex Passive derives its name from the fact that it obligatorily occurs with a passive past participle. In this section I show how this feature follows from the interaction between the semantics of equi and raising verbs.

Following ([Culicover and Jackendoff, 2005]) I assume the semantic structure of an obligatory control verb such as *try* as depicted below.

$$[\text{INTEND}(X^\alpha,[\text{ACT}(\alpha,Y)]]$$

The semantics of the verb decomposes into a semantic component of intention and an actional complement (the controlled complement). Crucially the ACTOR of the intention-component (represented with X^α) is co-referential with the ACTOR (α) of the embedded actional complement (thus showing that it is a subject control verb). Cf. example (50) below with the semantic representation immediately below.

(50)   bilen   forsøges repareret
        the.car is.tried   repaired

        'as for the car, an attempt is made to repair it'
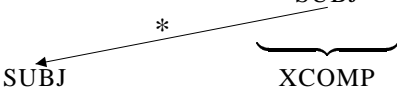
s-str: [INTEND (X^α,   [REPAIR   (α,   Y)   ])]
a-str: Ø   Ø   ARG2
f-str: SUBJ

            SUBJ   XCOMP

The most prominent argument of the matrix predicate has been suppressed, and also the most prominent argument of the embedded predicate. Consequently the argument Y may map to subject and since Y is not co-indexed with an argument of the matrix predicate, i.e. since it is not a semantic argument of the matrix predicate, it may raise to subject of the matrix predicate.

Consider next what happens if a complex passive is formed with an active past participle, i.e. the participle as used in *Peter har repareret bilen* 'Peter has repaired the car'.

(51)   * Peter forsøges repareret bilen
        Peter tries   repaired the.car

        'someone is trying to make Peter repair the car'

The semantic structure and the linking to syntax of the ill-formed example (51) is given below:

s-str: [INTEND (X^α , [REPAIR   (α,   Y)   ])]
a-str: Ø   ARG1
f-str: SUBJ

                            *
            SUBJ   XCOMP

The argument linked to the ACTOR of the matrix verb has been suppressed being the most prominent argument. However, the co-referential subject argument (the bound variable) of the embedded predicate is raised to subject of the matrix verb. A raising verb is a verb with a syntactic complement which is not at the same time a semantic argument. But in this case the raised complement does count as a semantic argument of the matrix predicate due to the fact that it is inherently bound by an argument of the matrix predicate (indicated with α). In this way the subject is licensed by the argument structure of the matrix verb, so this cannot be a raising construction. In a raising construction the raised argument cannot be inherently bound by an argument of the matrix verb. Since the ACTOR of controlled actional complements is bound by an argument of the matrix verb, the ACTOR-argument of the controlled actional complement has to be suppressed so as to allow another argument to map to subject, the target of raising constructions.

To sum up - when the matrix verb functions as a raising verb, only an argument which is not inherently bound by an argument of the matrix verb is eligible. Since raising targets subjects of embedded complements, the most prominent argument of the verbal complement, the ACTOR has to be suppressed to allow another argument to map to subject, or to allow the subject not to be linked to argument structure at all. In this way the semantics of equi and raising verbs conspire to enforce passivisation of the embedded predicate.

The morpho-syntactic realisation of the verbal complement As far as the morpho-syntactic realisation of the infinite complement as a past participle and not as a passive infinitive, I can only offer a descriptive generalisation. Following [Lødrup, 2002], I assume that XCOMPs are canonically realised as non-finite VPs cross-linguistically. A non-finite VP can be either an infinitival or a participial clause and as regards the choice between these two forms, a clear pattern can be discerned: verbs selecting finite verbal complements in the active take infinitival XCOMPs and verbs selecting infinitival complements in the active take participial XCOMPs.

The Complex Passive is formed by verbs selecting infinitival complements, but also verbs selecting finite complements may function as raising verbs when passived. This is expected since the most prominent argument is suppressed and the verb has to raise the subject of an embedded complement to fulfil the subject condition. However these raising complements are realised as infinitives, and not past participles. Cf. the example in (52) below.

(52) a. de påstår at han er rejst
they claim that he has left

b. han påstås at være rejst
he is.claimed to have left

If, however, the verb selects an infinitival complement in the active, the raising complement of the passivised verb is realized as a participle as previously discussed. Thus there appears to be a kind of hierarchical ordering of the morpho-syntactic realisation of the raising complements as shown below:

FINITE CLAUSE << INFINITIVAL CLAUSE << PAST PARTICIPLE

If the verb selects a finite clause in the active, the raising complement is an infinitival clause, and if the verb selects an infinitival clause in the active, the raising complement is realised as a

past participle. However, an explanation of this generalisation must be left for future research.

6 Conclusion

This paper has provided an analysis of the Complex Passive in Danish. It was shown that the Complex Passive is a raising construction, and the difference between the kinds of passives of equi-verbs was shown to be a difference between a passive equi verb with <u>anaphoric control</u> and a passive raising verb with <u>functional control</u>. It was shown that the raising construction is triggered by the morpho-lexical operation of passivisation creating the right argument structure environment, i.e. a verb with a propositional complement and no most prominent argument. On this analysis, raising configurations may thus not only be triggered by semantics but also by argument structure properties without any shift in semantics. The constraint that the embedded complement be passive was shown to follow from the interaction between the semantics of equi and raising verbs.

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