**Abstract**

The paper presents an analysis of *control switch* in German and Norwegian, as exemplified in the German pair *Ich verspreche ihm zu kommen* 'I promise him to come' vs. *Ich verspreche ihm kommen zu dürfen* 'I promise him to be allowed to come'. The phenomenon is induced by deontic modals in the context of suasive verbs of communication. The analysis is cast both in LFG and HPSG framework, in both cases deploying a pronounced feature-based semantic component. Our core assumption is that a *normative agent* is computed on top of control relations.

# 1 Introduction[1]

## 1.1 Background and objective

Both LFG and HPSG assume that obligatory control is lexically specified. While the controller is realised syntactically, the controllee corresponds to the unexpressed subject of the complement clause. In LFG control is seen either as functional control, that is the sharing of an f-structure (Bresnan 1982), or as obligatory anaphoric control, that is as a semantic relation only (Dalrymple 2001). In HPSG control resides in sharing of indices, but also here the scope of these indices can range from referential pointers (not unlike what is found in LFG for obligatory anaphoric control) to feature structures. In the latter case both theories assume control as unification.

In this work we will discuss some of the relevant mechanisms of the two frameworks in connection to the analysis of a regular pattern of 'control switch' in German and Norwegian. The pattern arises with verbs of communication which express wishes, desires, commitments or judgements, such as:

> German:
> *anflehen, überreden, versprechen, bitten, beschuldigen*
> Norwegian:
> *bønnfalle, overtale, love, be, anklage/beskylde*
> (English, respectively: 'beseech', 'persuade', 'promise', 'beg', 'accuse')

We will call verbs in this group **suasive verbs of communication** [2](Mair 1990. Quirk et al. 1985). When suasive verbs select a modal infinitival complement

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[1] We are grateful for comments from the participants at the HeadLex 2016 conference, and for insightful advice from two anonymous reviewers.

with the modal verb *dürfen* or deontic *können* (German), or *få* in its modal use (Norwegian), a complex verbal chain is formed, and an apparent switch of control can be triggered.

Switch control has not only been noticed in configurational studies of CONTROL (e.g., Ruzicka 1999), but has also been discussed from a pragmatic/conceptual perspective combined with corpus studies (Mair 1990), or as a feature-based approach using experimental techniques (Köpcke and Panther 1991). Our approach is restricted to what one might call 'deontic switch' following Rusicka (op. cit.). Our aim is to show how aspects of the *dürfen*-related phenomena follow from specific semantic factors of these constructions. The analytic designs of LFG and HPSG allow us to model the effect of these factors on top of the general mechanisms underlying control.

## 1.2 Switch from object control to subject control in German and Norwegian

In German, the transitive verb *anflehen* generally induces object control, cf. (1a):

(1a)    Er fleht mich an zu kommen
        He beseech.PRES me PRTCL to come.INF
        *'He beseeches me to come'*

In combination with the modal verb *dürfen* and deontic *können,* object control switches to subject control:

(1b)    Er fleht mich an kommen zu dürfen
        He beseech.PRES me PRTCL  come.INF to may.INF
        *'He beseeches me to be allowed to come'*

For Norwegian, a similar pattern is observed. In (2a) the logical subject of *komme* is *meg* 'me'. In (2b), when combined with *få* in its modal use as part of the infinitive, object control changes to subject control:

(2a)    Han ba meg om å komme
        He ask.PST me PREP to come.INF
        *'He asked me to come'*

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[2] Suasive verbs expressing orders such as German *befehlen,* Norwegian *befale, beordre* ('order')*,* do not group with the other suasive verbs relative to the phenomenon discussed here.

(2b)     Han ba meg om å få komme
         He ask.PST me PREP to get.INF come.INF
         *'He asked me to be allowed to come'*

*Få* also has aspectual uses, as described, e.g., in Lødrup (1996); here we are focusing on its 'deontic' use.

## 1.3      Switch from subject control to object control in German and Norwegian

The German verb *versprechen* is a subject control verb, but in combination with *dürfen* and deontic *können* the construction receives an object control interpretation:

(3a)     Ich verspreche ihm zu kommen
         I promise.PRES him to come.INF
         *'I promise him to come.'*

(3b)     Ich verspreche ihm kommen zu dürfen
         I promise.PRES him come.INF to may.INF
         *'I promise him to be allowed to come.'*

In Norwegian, the verb *love* 'promise' shows a similar pattern: In (4a) the logical subject of *komme* is *'jeg'*, in (4b) it is *'han'*:

(4a)     Jeg lovet ham å komme *'*
         I promise.PST him to come.INF
         *I promised him to come'*

(4b)     Jeg lovet ham å få komme
         I promise.PRES him to get.INF come.INF
         *'I promised him to be allowed to come'*

In contrast, *wollen* as well as its Norwegian counterpart *ville,* which have a volitional modal base, do not affect lexically determined control relations.

## 1.4      The phenomenon in English

For English, Radford (1985:381) discusses an example with an object-control verb which receives a subject-control interpretation. While *John pleaded with*

*me to go* means that I should go, *John pleaded with me to be allowed to go* states that I should allow John to go. Also in the case of an unlikely interpretation, a default object-control pattern may be overridden by a subject-control interpretation such as in the case of *He asked his boss to have an afternoon off* (Mair 1990). These cases of switched control seem marginal for English, but not so for the cases we discuss in German and Norwegian, where modal verbs are used widely and systematically in embedded infinitives (see also Stiebels (2015)).[3]

## 2        'Control switch' – diagnosis

Control switch constructions are composed of two verbal predicates: the modal non-finite predicate and the matrix predicate. We would like to treat modals with a deontic modal base such as *få*, *dürfen* and *können* as three-place relations with a normative agent as first argument, an addressee who gets a permission as second argument, and an action as third argument.

  *Suasive verbs* describe communications about what we may call **negotiable situations**. Thematically the situation is instantiated by a promiser/persuader and an addressee, and the lexicalised control pattern encodes whether the promiser/persuader subject or the addressee object is under negotiaton as the agent of the situation under discussion. *Promise* type verbs feature the promiser as this prospective agent, while for the *beseech* type the adressee is construed as this agent. In a deontic context a normative agent is introduced under whose regime the prospective agent of the embedded infinitive will have to act. Under obligatory control the normative agent is always bound to one of the expressed arguments, and in this way the switched control pattern described here is borne. What thus makes suasive verbs in construction with deontic modals unique is that they, with obligatory control, provide a formal device to express, next to understood logical subjects, also the understood normative agent. This is interesting in itself since in constructions headed by modal verbs, the normative agent normally remains unexpressed. In this respect switch control structures are the exception rather than the rule. What we try to show here is how constraint-based linguistic formalisms can be adapted to give a theoretically grounded representation for which of the realised arguments in an obligatory control construction needs to be interpreted as the normative agent, and which one as the logical subject of the embedded event.

Illustrating the configuration, the suasive verbs of the type *promise* have three semantic arguments (x y P) overtly realised, so that the sentence *He promises*

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[3] Hypothetically speaking, an English counterpart could have been like:
    *\*He promised me to may go*.

*him to come* has roughly the semantic structure in (5), with x as the promiser, y as the addressee, and P as the action to be conducted by x:

(5)    PROMISE(x y P(x)).

In a sentence like (3b), repeated,

(3b)    Ich verspreche ihm kommen zu dürfen
         I promise.PRES him come.INF to may.INF
         *'I promise him to be allowed to come.'*

the normative agent introduced by d*ürfen* is bound to the first argument of *versprechen,* the promiser subject instantiated in (5) as x. Thus we get the semantic pattern in (6b) for the switched pattern, as opposed to the 'normal' pattern in (6a). In both schemata identical letters indicate referential identity, underlined letters indicate the bearer of the deontic control relation.

(6)    a.    PROMISE [$x$ y [$x$ come]]                   *subject control*
        b.    PROMISE (x $y$ [ PERMIT ( x $y$ [ $y$ come]]    *object control*

   The opposite pattern obtains for the *beseech* type of verbs (e.g., (1) and (2)):

(7)    a.    BESEECH [x $y$ [$y$ come]]                   *object-control*
        b.    BESEECH ($x$ y [ PERMIT ( y x [ $x$ come]]    *subject-control*

   From a formal linguistic point of view, a question is how we can construct a semantics which allows us to express the patterns discussed. Our representation of a deontic agent in (6b) and (7b) as a semantic argument on a par with standard arguments leaves some room for consideration, partly because the 'visibility' of this argument is far less apparent than for other types of implicit arguments. Thus, even when the deontic verb appears as matrix finite verb, the overt subject is semantically that of the addressee, whereas the deontic agent is still only understood; cf. (8):[4]

(8)    a.    Er darf kommen                          (German)
               He may.PRES come.INF
               *'He may come'*

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[4] Following standard practice, 'evidence' for an implicit agent in the case of passives is seen as residing in the existence of an active counterpart, where the overt subject instantiates the agent.

    b.       Han får komme                        (Norwegian)
             He get.PRES come.INF
             *'He gets the possibility to come'*

The only 'visibility' relative to *få* resides in the circumstance that in Norwegian, this implicit agent can be accessed through an adjunct as in (9a), with much the same form and meaning as the adjunct for demoted agents in passive (9b), and for understood causers (9c):

(9)     a.        Hun får gå på fotballkamper av søstrene sine
               She get.PRES go.INF on football-matches by sister.PL her.PL
               *'She is-permitted-to watch football matches by her sisters'*

        b.        Hun ble kritisert av søstrene sine.
               She be.PST criticize.PASS by sister.PL her.PL
               *'She was criticized by her sisters'*

        c.        Treet blåste ned av vinden
               tree.DEF blow.PST down by wind.DEF
               *'The tree blew down by the wind'*

The German counterparts of *få - dürfen* and *können* - do not offer similar adjunct possibilities.[5]

   The visibility signs just mentioned, and the circumstance that deontic modals do indeed induce a control switch, in our view warrants representing the modal agent as playing a part in the semantic argument structures as indicated. However, distinct from the standard array of arguments representing situational participants, this modal agent represents a social index already exposed by a suasive verb.

   A point to be noted is that the patterns now described arise only when both of the arguments of the suasive verb are overtly expressed, as in all of our examples so far. We discuss this point in subsection 5.2 below.

   A remark is in order also concerning the assumed addressee/permissee argument in (6b) and (7b). In the constructions at hand with a suasive matrix verb, the relation between the deontic agent and the controlled agent is always direct. This is also reflected in our analyses where we assume for HPSG and LFG that an embedded PERMIT relation is a 3-place relation between a normative agent, a permissee and a situation. However, using the predicate

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[5] *Få* can also be used as a plain transitive verb, like in (i), and with a similar 'donor' agent explicitly stated as in (ii), presumably counting as implicit also in (i):
*(i)*        Han fikk boken  *'He received the book'*
*(ii)*       Han fikk boken av presten *'He received the book by the priest'*
  German modal verbs are different in this respect.

name 'PERMIT' does not quite capture the relation intended, namely (quoting from above) *'normative agent under whose regime the prospective agent of the embedded infinitive will have to act'*: the relation could well be less direct than permission in the normal sense.[6] A predicate name like 'FACILITATOR' might have been better, but we leave it at the shorter name.


# 3        HPSG-style representation

Using an HPSG format,[7] the switch from subject to object control illustrated in (3b) and (4b) can be represented as in Figure 1, with coindexation for referential identity. The semantics corresponding to the schematic display in (6b) is found under SEM (with ARG0 representing a situational index; for expository convenience we use English predicate names in the semantics).
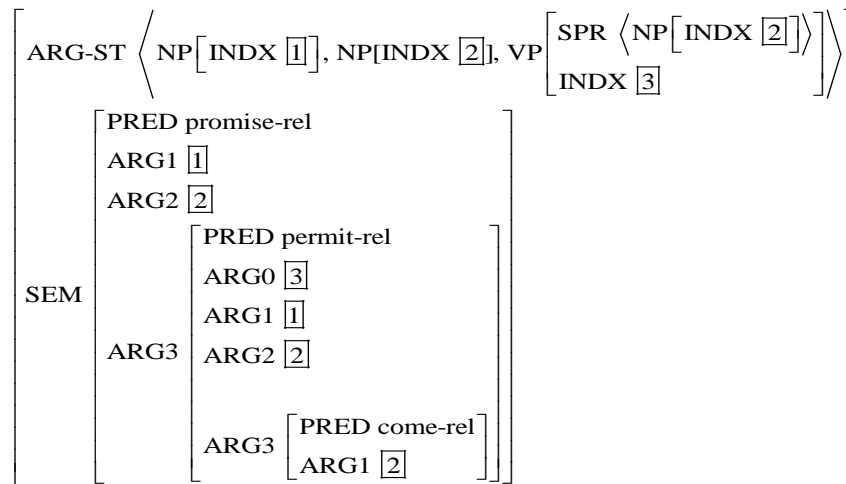
$$
\begin{bmatrix}
\text{ARG-ST} \left\langle \text{NP}\begin{bmatrix}\text{INDX}\ \boxed{1}\end{bmatrix}, \text{NP[INDX}\ \boxed{2}\text{]}, \text{VP}\begin{bmatrix}\text{SPR}\ \left\langle\text{NP}\begin{bmatrix}\text{INDX}\ \boxed{2}\end{bmatrix}\right\rangle \\ \text{INDX}\ \boxed{3}\end{bmatrix}\right\rangle \\[4ex]
\text{SEM}\begin{bmatrix}\text{PRED promise-rel} \\ \text{ARG1}\ \boxed{1} \\ \text{ARG2}\ \boxed{2} \\ \text{ARG3}\begin{bmatrix}\text{PRED permit-rel} \\ \text{ARG0}\ \boxed{3} \\ \text{ARG1}\ \boxed{1} \\ \text{ARG2}\ \boxed{2} \\ \text{ARG3}\begin{bmatrix}\text{PRED come-rel} \\ \text{ARG1}\ \boxed{2}\end{bmatrix}\end{bmatrix}\end{bmatrix}
\end{bmatrix}
$$

Figure 1 HPSG representation of (3b) *Ich verspreche ihm kommen zu dürfen*

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[6] Like in a possible case described by a reviewer: "*ich versprach ihm zu Peters Party kommen zu dürfen.* may involve a permitter distinct from me (I may have some influence on Peter or some organiser to be able to make that commitment)."

[7] We stay essentially within the frame of works such as Pollard and Sag (1994), Sag and Wasow (1999), Sag et al. (2003), and the 'Matrix' architecture underlying some of the HPSG computational grammars (cf. Bender et al. 2010). Thus, the 'ARG' attributes are as in Pollard and Sag (op.cit.) and Bender et al. (op cit.), while the leanness of the feature structure approximates that of the other two; some further simplifications are made for the purpose of exposition. An algorithmically tractable implementation of the analysis can be attained using the 'Matrix' architecture as indicated in footnote 8, and most likely other architectures as well.

The contribution of *dürfen/få* per se is indicated in Figure 2 (the referential index of ARG1, indicated by the boxed reentrancy number '1', deliberately left free):

$$
\begin{bmatrix}
\text{ARG-ST} \left\langle \text{NP}\big[\text{INDX } \boxed{2}\big],\ \text{VP}\begin{bmatrix} \text{SPR } \left\langle \text{NP}\big[\text{INDX } \boxed{2}\big]\right\rangle \\ \text{INDX } \boxed{3} \end{bmatrix} \right\rangle \\[2ex]
\text{SEM} \begin{bmatrix} \text{PRED permit-rel} \\ \text{ARG1 } \boxed{1} \\ \text{ARG2 } \boxed{2} \\ \text{ARG3} \begin{bmatrix} \text{ARG0 } \boxed{3} \\ \text{ARG1 } \boxed{2} \end{bmatrix} \end{bmatrix}
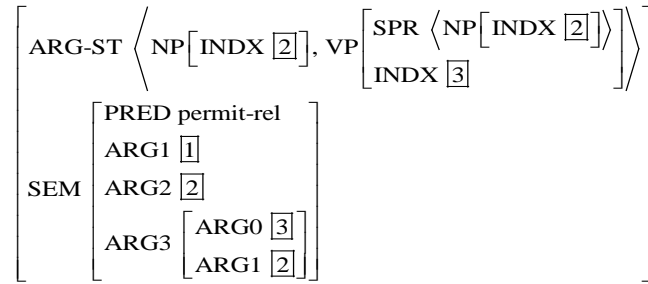\end{bmatrix}
$$

Figure 2  Representation of *dürfen/få* as in (8a) *Er darf kommen*

In *Er darf kommen* the subject of *kommen* will bind the index indicated with the boxed number '2'in Figure 2, whereas the index indicated with the boxed number '1' remains un-instantiated syntactically. It gets instantiated only when *versprechen* combines with *kommen zu dürfen*, imposing its subject control pattern, resulting in the constellation shown in Figure 1. Notably, the ARG1 of *dürfen* which now gets bound is not the index associated with the *subject* of *dürfen*, but the index of the *permitter*.

   Thus, what here has to act as the lexical specification of *versprechen* is the structure in Figure 3, requiring identity between the two ARG1's (on the paths 'SEM|ARG1' and 'SEM|ARG3|ARG1'), and between the ARG2 of *promise* and the referent of the syntactic subject of the VP (indicated by the boxed number '2'):

$$
\begin{bmatrix}
\text{ARG-ST} \left\langle \text{NP}\big[\text{INDX } \boxed{1}\big],\ \text{NP[INDX } \boxed{2}],\ \text{VP}\begin{bmatrix} \text{SPR } \left\langle \text{NP}\big[\text{INDX } \boxed{2}\big]\right\rangle \\ \text{INDX } \boxed{3} \end{bmatrix} \right\rangle \\[2ex]
\text{SEM} \begin{bmatrix} \text{PRED promise-rel} \\ \text{ARG1 } \boxed{1} \\ \text{ARG2 } \boxed{2} \\ \text{ARG3} \begin{bmatrix} \text{ARG0 } \boxed{3} \\ \text{ARG1 } \boxed{1} \end{bmatrix} \end{bmatrix}
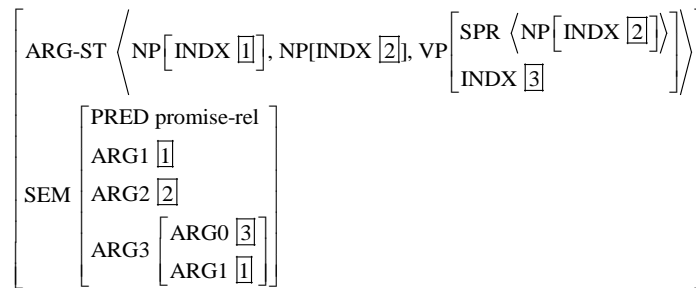\end{bmatrix}
$$

Figure 3   Representation of *versprechen* targeted for its use in control switch

This contrasts with the specification of the downstairs syntax that the lexical specification of *versprechen /love/promise* would normally be assumed to carry, exhibited in Figure 4, which in this case would wrongly equate the one who gets permission with the one who promises:
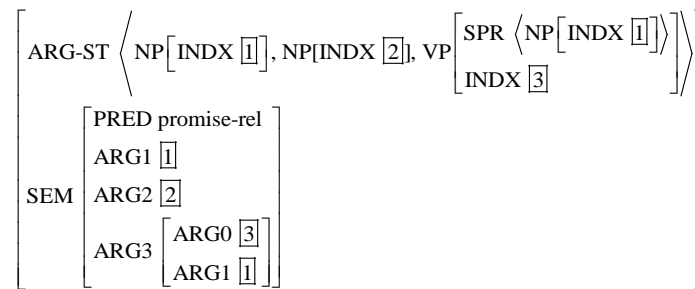
$$
\begin{bmatrix}
\text{ARG-ST} \ \left\langle \text{NP}\begin{bmatrix} \text{INDX} \ \boxed{1} \end{bmatrix}, \text{NP}[\text{INDX} \ \boxed{2}], \text{VP}\begin{bmatrix} \text{SPR} \ \left\langle \text{NP}\begin{bmatrix} \text{INDX} \ \boxed{1} \end{bmatrix} \right\rangle \\ \text{INDX} \ \boxed{3} \end{bmatrix} \right\rangle \\[4mm]
\text{SEM} \begin{bmatrix} \text{PRED promise-rel} \\ \text{ARG1} \ \boxed{1} \\ \text{ARG2} \ \boxed{2} \\ \text{ARG3} \begin{bmatrix} \text{ARG0} \ \boxed{3} \\ \text{ARG1} \ \boxed{1} \end{bmatrix} \end{bmatrix}
\end{bmatrix}
$$

Figure 4  Representation of *versprechen/love* for 'standard' cases

How would the grammar ensure that the right version of *versprechen /love/promise* is used in each case? Nothing in the syntax or semantics would be formally ill-formed in case the wrong combinations are made (control switch using the lexical specification in Figure 4, or standard case using the lexical specification in Figure 3); hence it will seem that the lexical specification in Figure 3 must be expanded with some reference down into the VP ensuring that it is headed by a *suasive* verb, and that the lexical specification in Figure 4 must be expanded with reference down into the VP ensuring that it is *not* headed by a suasive verb. While the elegance of such a scenario can be left partly up to its implementation in an explicit grammar, it at least is an asset to the analysis that the representation of *dürfen/få* as such is kept constant across cases with control switch and cases where they occur as a matrix verb by themselves, as in (8) above.[8] Thus, although control switch involves a tight dependency between the

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[8] In the online HPSG grammar *NorSource* of Norwegian (http://regdili.hf.ntnu.no:8081/linguisticAce/parse), the syntactic and MRS-semantic analyses of the following sentences display the approach here argued for, in the 'Matrix' type formalism (cf. Bender et al. 2010). It may be noticed that the same item *få* occurs in all analyses, whereas special 'switch' lexical items are used for both matrix verbs.

*Jeg får komme* 'I get-to come', showing abstract 'permitter'
*Hun lovet meg å komme* 'she promised me to come', *normal subject control*
*Hun lovet meg å få komme* 'she promised me to get-to come', *switched control*
*Hun ber meg om å komme* 'she asks me to come', *normal object control*
*Hun ber meg om å få komme* 'she asks me to get-to come', *switched control*

In this implementation crucial use is made of the attribute 'XARG', which can be set distinct from a verb's ARG1 (which corresponds to its 'logical subject'), so as to, for instance, represent a verb's subject in cases where the verb's syntactic subject is distinct from its 'logical' subject. The grammar can be found at https://github.com/Regdili-

matrix verb and *dürfen/få*, the analysis maintains the compositionality of the construction, in that each part has its specific semantic contribution to the overall reading.


# 4       Formal analysis in LFG-style representation

In LFG obligatory control is captured by means of lexically induced functional control equations. *Versprechen* has, next to the meaning we are interested in here, an epistemic reading with an upstairs non-thematic-subject - the corresponding f-structure is Figure 5a:

$$
\begin{bmatrix}
PRED & 'versprechen\ <XCOMP>\ SUBJ\,' \\[1em]
SUBJ & \boxed{1}\begin{bmatrix} PRED & 'pro\,' \\ NUM & SG \\ PERS & 3 \end{bmatrix} \\[1em]
XCOMP & \begin{bmatrix} PRED & 'regnen<pro> \\ SUBJ & \boxed{1} \end{bmatrix}
\end{bmatrix}
$$

Figure 5a  Functional control: Representation of *'Es verspricht zu regnen*[9]

We are here interested in the *equi construction* for which we assume obligatory anaphoric control. Coindexation indicates referential identity, as shown in Figure 5b.[10]

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NTNU/NorSource/tree/master, and screenshots from analyses of some of the above sentences at http://headlex16.ipipan.waw.pl/programme.

[9]  The English Iness XLE web grammar (http://clarino.uib.no/iness/xle-web, accessed 08.02.16) suggests functional control for the verb 'promise'.

[10] In an architecture where one also makes use of an s-structure component, referential dependencies do not need to be shown in f-structure. In our representations we however stay with the conventions.

$$\begin{bmatrix} PRED & 'versprechen < SUBJ, OBJ, COMP >' \\ SUBJ & \begin{bmatrix} PRED & \boxed{1}'pro' \\ NUM & SG \\ PERS & 3 \end{bmatrix} \\ OBJ & \begin{bmatrix} PRED & 'pro' \\ NUM & SG \\ PERS & 3 \\ CASE & DAT \end{bmatrix} \\ COMP & \begin{bmatrix} PRED & 'kommen < SUBJ >' \\ SUBJ & \boxed{1}'pro' \end{bmatrix} \end{bmatrix}$$

Figure 5b  Obligatory anaphoric control: *'Ich verspreche ihm zu kommen.'*

In the LFG literature, the discussion of control is in many cases confined to the discussion of f-structure, but semantic approaches using linear logic, also covering control, are available (Dalrymple 1999, Asudeh 2005, next to others).
In order to formalise switched control, we need an explicit semantic representation. Working within feature semantics (Fenstad et al. 1985, Halvorsen and Kaplan (1995)), we use a formally grounded flexible format to relate co-reference and shared-argument configurations.  Halvorsen and Kaplan formalise their approach by the composition of mappings, with an attribute-value type s-structure σ and a reversed f-function $\Phi^{-1}$. This is what we will use to describe switch control as outlined in section 2.

  As outlined in section 2, control constructions containing a suasive matrix verb and an embedded modal infinitive require that one of the arguments of the matrix verb is the understood normative agent. thus giving rise to the construction's deontic controller.[11] Although we use the same formal device to state normative and semantic dependencies, we have in mind that semantic participants and deontic controllers do not have the same conceptual status, and that thematic indices most likely should therefore be distinguished from normative ones. In this study, though, we compute deonticity as piggybacking on control relations  and thus as semantic assignments that  lead to the observed switched control patterns. As for now we suggest to introduce a conditioned functional control equation which allows us to introduce normative constraints on top of the already existing lexical semantic constraints when required by a deontic infinitival complement. This can be done in the lexicon using semantic equations as shown for *verspechen*/promise in (10). Note that if the if-then constraint is not met, standard subject control (Figure 5b) will result. [12]

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[11] We discuss deontic control in the case of implicit arguments in section 5.2.

[12] We use $\sigma'^{-}$ to denote an inverse function, as suggested by Halvorsen for  phi (Halvorsen 1995: 283). Here we work with an inverse sigma function instead, that is a mapping from s-str to f-str.

(10)  **versprechen**

(M* PRED) = 'versprechen <SUBJ, OBJ, COMP >'

(M* SUBJ) = (M* COMP SUBJ)

 **if** (M* COMP MOD) = deontic  **then**

$\sigma$(M* ARG1) = $\sigma$ (M* ARG3 ARG1) and

$\sigma$(M* ARG2) = $\sigma$ (M* ARG3 AGR3 ARG1)  and

$\sigma$(M* ARG3 ARG1) = $\sigma^{r}$ (M* SUBJ PRED) and

$\sigma$(M* ARG3 ARG3 ARG1) = $\sigma^{r}$ (M* COMP COMP SUBJ PRED)

$= \sigma^{r}$ (M* COMP SUBJ PRED)

$= \sigma^{r}$ (M* OBJ PRED)

 If the conditional constraint is met, we, as a procedure, first tie up referential identity in two purely semantic constraints, and then add two inter-modular constraints that define the relation between the deontic semantics and its functional realisation. In f-structure the deontic controller is only realised once as the matrix subject while the matrix object is instantiated as the understood subject of the modal infintive (as in (3b) *Ich verspreche ihm kommen zu dürfen).* The combined f- and s-structure correspondence is shown in Figure 6:

$$
\begin{bmatrix}
PRED & 'versprechen\ < SUBJ, OBJ, COMP >\,' \\
SUBJ & \begin{bmatrix} PRED & \boxed{1}\,'pro' \end{bmatrix} \\
OBJ & \begin{bmatrix} PRED & \boxed{2}\,'pro' \\ CASE & DAT \end{bmatrix} \\
COMP & \begin{bmatrix} PRED & 'dürfen < SUBJ, COMP >\,' \\ SUBJ & \boxed{2}\,'pro' \\ MOD & DEONTIC \\ COMP & \begin{bmatrix} PRED & 'kommen < SUBJ >\,' \\ SUBJ & \boxed{2}\ 'pro' \end{bmatrix} \end{bmatrix}
\end{bmatrix}
$$

f-structure

$\sigma^{-1}$

$$
\begin{bmatrix}
REL & versprechen \\
ARG1 & \boxed{1} \\
ARG2 & \boxed{2} \\
ARG3 & \begin{bmatrix} REL & PERMIT \\ ARG1 & \boxed{1} \\ ARG2 & \boxed{2} \\ ARG3 & \begin{bmatrix} REL & kommen \\ ARG1 & \boxed{2} \end{bmatrix} \end{bmatrix}
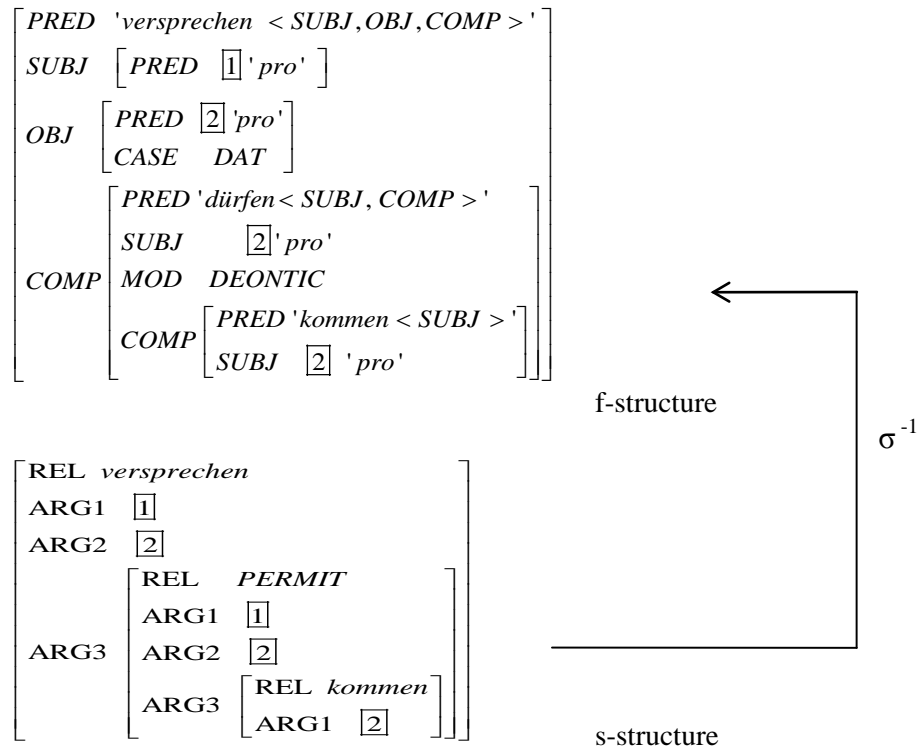\end{bmatrix}
$$

s-structure

Figure 6    Control resolution in deontic non-finite verb chains headed by
            suasive verbs of communication

# 5        Discussion

## 5.1        Passive inside the infinitival complement

Changes in control relations can be induced also through passive voice inside the infinitival complement. Examples from both languages are given in (11):

(11a)    Ich versprach ihm abgeholt zu werden                    (German)
         I promise.PST him pick-up.PASS to be.INF
         *'I promised him to be picked up'*

(11b)    Jeg lovet ham å bli sitert                             (Norwegian)
         I promise.PST him to be.INF cite.PASS
         *'I promised him to be cited'*

In both cases the reading that perhaps comes first to mind is one of object control, but given a suitable context they could also have subject control, and in both cases either reading necessitates a certain understood constellation of power or influence in the actual situation. Thus, in object control interpretation of (11), the 'I' can in both cases be easily understood as having enough influence in the situation to bring about the event expressed by the infinitival clause.

   If a deontic modal is added, however, as in (12), the object control interpretation in both cases seems to be the only one available (i.e., *he* will be picked up, not I, and *he* will be cited, not I):

(12a)    Ich versprach ihm abgeholt werden zu dürfen              (German)
         I promise.PST him pick.up.PASS be.INF to may.INF
         *'I promised him to be allowed to be picked up'*

(12b)    Jeg lovet ham å få bli sitert                          (Norwegian)
         I promise.PST him to get.INF be.INF cite.PASS
         *'I promised him to be allowed to be cited'*

   The corresponding – converse - judgments seem valid for object control verbs; the sentences in (13) both seem ambiguous (although perhaps with preference for subject control), while the sentences in (14) can only have one reading:

(13a)    Ich bat ihn abgeholt zu werden                         (German)
         I ask.PST him pick.up.PASS to be.INF
         *'I asked him to be picked up'*

(13b)      Jeg ba ham om å bli sitert          (Norwegian)
             I ask.PST him about to be.INF cite.PASSP
             *'I asked him to be cited'*


(14a)      Ich bat ihn abgeholt werden zu dürfen      (German)
             I ask.PST him pick.up.PASS be.INF to may.INF
             *'I asked him to be allowed to be picked up'*
             ('I' as the one to be picked up)

(14b)      Jeg ba ham om å få bli sitert         (Norwegian)
             I ask.PST him about to get.INF be.INF cite.PASS
             *'I asked him to be allowed to be cited'*
             ('I' as the one to be cited)

With regard to their role in serving as source of control switch for the verbs in question, there thus seems to be a contrast between downstairs passives and deontic modals. While the former tend to induce ambiguity in control interpretation, but can be disambiguated through use of the deontic modal, the deontic modals do not induce ambiguity. The mutual independence of these sources is also shown by the circumstance that either type can appear without the other, and that they can occur together.

We will not venture into any analysis of passives whereby the optional effect of control switch could follow,[13] since this ambiguity does not reside in anything like the deontic predicate we have assumed for *dürfen/få*. As just shown, the introduction of the deontic modal *resets* the ambiguity back to the pattern we have described.


## 5.2      Implicit objects as controllers

As noted at the end of section 3, the control switch patterns we describe obtain only when both the subject and the object are overtly expressed. If there is no overt object, constructions without deontic modals tend to display much variation in their control possibilities; thus, in German (15a) is possible with the

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[13] We therefore will also not make any concrete suggestions as to how the switch effect connected to passives ought to be implemented in a grammar like the one mentioned in footnote 9, except for the following  If an approach involving 'XARG' is used for passives analogously to what was indicated in footnote 8 for *få*, then the lexical representation of the modal *få* has to be split into one variant taking an active infinitive complement, in essence like the one considered in the text, and one variant taking a passive complement, whose 'XARG' will then have to be equated with the XARG of *få*.

interpretation indicated, but not subject control, whereas the Norwegian counterpart (15b) can have neither construal:

(15)    a.    Ich bat das Zimmer zu verlassen
             I ask.PST the room to leave.INF
             *'I asked everyone to leave the room'*

         b.    * Jeg ba om å forlate rommet
             I ask.PST about to leave.INF room.DEF
             *'I asked to leave the room'*

However, if a deontic modal is indeed used, both constructions turn into exclusively subject control patterns:

(16)    a.    Ich bat das Zimmer verlassen zu dürfen
             I ask.PST the room leave.INF to may.INF
             *'I asked to be allowed to leave the room'*
             ('I' leaving the room)

         b.    Jeg ba om å få forlate rommet
             I ask.PST about to get.INF leave.INF room.DEF
             *'I asked to be allowed to leave the room'*
             ('I' leaving the room)

What is observed here is thus the same *resetting* effect of using the deontic modal as was noted at the end of the previous subsection.[14]

   This confirms the picture of an item which deterministically seeks out an overtly expressed controller in the matrix clause.

# 6      Concluding remarks

We have argued that the control patterns found in 'control switch' constructions containing the deontic modals *dürfen* (German) and *få* (Norwegian) are a case of deontic indexation. When a deontically headed infinitive is embedded under a suasive verb of communication, a deontic controller is introduced. This deontic controller is identified with the referent of one of the arguments of the matrix clause.

   With their concise designs of syntactic-semantic representation, both of the frameworks LFG and HPSG allow for the articulation of these constellations.

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[14] A similar observation is made in Doliana and Sundaresan (2016, p. 9), in a discussion of related phenomena.

Conditionals formulated for LFG (cf. (10) correspond to the double lexical specification of suasive verbs mentioned in the HPSG analysis.

This phenomenon of control switch is 'deterministic' – one relation of obligatory control is switched into the opposite relation of obligatory control. It is thereby different from the situation of ambiguous control relations as sometimes arise when the embedded infinitive is in passive form. Interesting in this context is that embedded deontic passives, as opposed to simple embedded infinitival passives, are unambigous in their control resolution.

A possible weakness of our approach is that we formally treat deontic indices on a par with thematic ones, which invites the question why the deontic controller introduced as the ARG1 of the deonic predicate is never openly realized, as opposed to the subject (or ARG1) of a standard predicate. As we see the facts, in these constructions deonticity is computed together with obligatory control relations, and so the deontic dimension must be allowed to – so to say – piggyback on the thematic dimension. In representing this circumstance, our approach nevertheless seems justified.

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Resources
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Online grammars for Norwegian:
for LFG http://clarino.uib.no/iness/xle-web,
for HPSG http://regdili.hf.ntnu.no:8081/linguisticAce/