A semantic-pragmatic description of some Norwegian control verbs. A discussion of the classification of their English counterparts in WordNet

Ålov RUNDE, Oslo, Norway

Abstract

The aim of this paper is twofold: to describe four Norwegian control verbs, and to discuss how their English counterparts are classified in WordNet, an on-line lexical reference system. In sections 1 and 2, the terminology and theoretical framework is briefly outlined. Section 3 gives the analysis of the four Norwegian control verbs in question, the object control verbs *tvinge* ('force'), *påby* ('order, command'), and *be* ('ask'), and the subject control verb *love* ('promise'). I argue that the object control verbs and the subject control verb have an important feature in common, which I call their *deontic aspect*: they denote situations in which a particular action – the action denoted by the infinitival complement – becomes obligatory for one of the two participants in the control verb situation. In section 4, I discuss the classification of the English counterparts of the Norwegian control verbs in WordNet, a classification which does not capture the modal aspect of the verbs.

1   Introduction

Broadly speaking, the term "control" refers to a coreference relation between the unexpressed subject of a predicative complement or adjunct, typically an infinitival phrase, and another element in the linguistic context of this subject. (1) gives two examples of control, in (1a) the relation holds between the infinitival subject and the matrix subject, and in accordance with this terminology, the matrix verb *promise* is often called "subject control verb". In (1b) the relation holds between the infinitival subject and the matrix object, and the verb *order* is called "object control verb". The infinitival subject is often called "controllee", the matrix argument "controller".

(1) a. Mary promised Peter to leave.

   b. Mary ordered Peter to leave.

Perhaps the most widely discussed question in the control literature is the so-called "control problem" [Postal 1970]. Consider again the two sentences in (1a) and (1b) above. They are structurally identical, but differ in terms of controller. This was the starting point in [Runde 1997], which gives a semantic-pragmatic description of ten Norwegian control verbs. In this paper, I shall discuss four of them, the object control verbs *tvinge* ('force'), *påby* ('command, order') and *be* ('ask'), and the subject control verb *love* ('promise'). The verbs are illustrated in (2) below.

(2)   a. De store guttene tvang ham til å røyke.
       'The big boys forced him to smoke'

      b. Mor påbyr barna å bruke sykkelhjelm.
       'Mother commands/orders the children to wear bicycle helmets'

      c. Solfrid ba ham om å vaske gulvet.
       'Solfrid asked him to wash the floor'

      d. Politimannen lovte Peder å ta seg av saken.
       'The policeman promised Peder to look into the case'

In my analysis, I will establish a connection between the object control verbs and the subject control verb with reference to the semantic notion of *deontic* (or *root*) *modality*. I will first briefly discuss the notion of modality, and then give a somewhat sketchy description of the four verbs in question. Finally, I will discuss how these control verbs – or rather their English counterparts – are classified in WordNet. Does the WordNet classification of the English control verbs reflect any of the aspects of the description given here? If not, is there a better way to classify them?

2   Modality

[von Wright 1951] distinguishes between four different types of modality – atelic, epistemic, deontic and existential. With respect to the verbs in question, the most important type of modality is the *deontic*, which deals with notions like 'obligation', 'permission' and 'prohibition'. In my analysis here, the notion 'obligatory' will be central. Within linguistics, emphasis is often laid on the *subjective* aspect of modality, see for example [Lyons 1977, Lyons 1995] and [Palmer 1986].

Deontic modality deals with necessary and possible actions and situations, i.e. with *obligatory* and *permitted* actions. This kind of modality is thus rooted in different kinds of social and moral norms. The notion 'deontic' may in turn be defined in two different ways, depending on one's focal point. Under an objective interpretation of deontic modality, focus is on the fact that the action or situation itself is obligatory or permitted. A subjective interpretation of deontic modality, on the other hand, also includes the participants involved in – and their contribution to – the deontic situation. I understand the notion of modality in the latter sense, i.e. primarily as a subjective semantic category, a relation between the speaker and his/her utterance. The relation between the two interpretations may be illustrated with the sentences in (3):

3   a. The children must wear helmets when they are riding their bikes.

    b. (i) it is obligatory to wear bike helmets
        (ii) mother said so

The modal content of the sentence in (3a) may be interpreted in two different ways. An objective interpretation can be paraphrased roughly (in everyday terms) as in (3b(i)), i.e. an interpretation

where the focus is on the deontic situation itself: helmets are obligatory during bike riding. The sentence may also be interpreted subjectively, as in (3b(ii)), i.e. an interpretation which also includes the participant who is responsible for the fact that the action is obligatory. The modal content of an utterance may thus be said to consist of two different aspects, an objective "core" and a subjective dimension. In order to describe this subjective dimension of modality, it is necessary to reveal the *illocutionaryforce* of the utterance, and in order to do that, we must find the conditions or *background assumptions* which specify the rules of how this utterance is used, cf. [Searle 1969], [Levinson 1983].

The aim of my analysis of the control verbs above has primarily been to describe the "roles" of the participants in what we informally may call the control verb situations [Runde 1997, Runde 1998]. Thus the subjective aspect or dimension of modality, including the speaker's attitude towards or intention with his utterance, has been central. An important part of my description of the modal aspect thus includes a specification of the background assumptions[1] of the verbs in question.

3   The modal content of the control verbs

The control verbs *tvinge* ('force'), *påby* ('order, command'), *be* ('ask'), and *love* ('promise') denote specific situations, and the background assumptions indicates what kind of situation we are dealing with in each case. The background assumptions can in turn tell us more about the situations denoted by the verbs – in what respect are they similar, and how do they differ? The sentences in (4) illustrate the object control verbs *tvinge* ('force'), *påby* ('command, order') and *be* ('ask'), and (5)-(7) specifies the relevant background assumptions for these verbs:

(4)   a. De tvang ham til å røyke.
         'They forced him to smoke'

      b. Mor påbyr barna å bruke sykkelhjelm.
         'Mother commands/orders the children to wear bicycle helmets'

      c. Solfrid ba ham om å vaske gulvet.
         'Solfrid asked him to wash the floor'

(5)   *A forces B to perform X* [2]

      a. A says something (to B)[3]

      b. A *knows* that B does not want to perform X

      c. A has an intention with his utterance: to make B perform X

      d. B is capable of performing X

      e. B must necessarily comply with A's force

(6)   *A orders/commands B to perform X*

      a. A says something (to B)

    b. A *believes* that B does not want to perform X

    c. A has an intention with his utterance: to make B perform X

    d. B is capable of performing X

    e. B is not free to say yes or no to A's order, but B can choose not to comply with A's order

(7) *A asks B to perform X*

    (a) A says something (to B)

    (b) A believes that B (perhaps) does not want to perform X

    (c) A has an intention with hisutterance: to make B perform X

    (d) B is capable of performing X

    (e) B is free to say yes or no to A's request

I cannot go into details about the similarities and differences between these three object control verbs here, so I'll focus on the most significant features for our purposes. Briefly, what the three object control verbs have in common, is that they all denote a situation where participant A intends to make participant B perform the action denoted by the infinitival complement. In this sense, participant A creates a kind of obligatory situation – a *social obligation* – for participant B. The verb *tvinge* ('force') has a special causative element which the two other verbs lack, cf. (5e) above: Participant B must necessarily perform the action denoted by infinitival complement. With *påby* ('order, command') there is a similar type of obligation involved for participant B, but in this case, B can choose not to perform the action denoted by the infinitival complement, cf. (6e). (7e) above reflects that the obligation involved with the verb *be* ('ask') is much weaker than with the other two object control verbs. Thus, the three object control verbs are different in many respects, but they have something very important in common as well. This common feature, which I call the *deontic aspect* of the verbs, can be described as in (8):

(8) THE DEONTIC ASPECT OF THE OBJECT CONTROL VERBS *tvinge* ('FORCE'), *påby* ('ORDER, COMMAND') AND *be* ('ASK'):

By his utterance, the actor (participant A) creates a social obligation for the recipient (participant B) – the situation denoted by the infinitival complement becomes "obligatory" (in greater or less degree) for the recipient.

The subject control verb *love* ('promise') is illustrated in the sentence in (9), and the relevant background assumptions are given in (10).

(9) Hilde lovte Jon å komme på festen

    'Hilde promised Jon to come to the party'

(10) *A promises B to perform X*

    a. A says something (to B)

    b. A believes that B wants A to perform X, and thinks that X is in B's interest

    c. A has an intention with his utterance: to perform X

    d. A is capable of performing X

As (10) reflects, the background assumptions for the subject control verb *love* ('promise') are very different from the background assumptions for the object control verbs discussed above. But *love* ('promise') has something important in common with them as well: it denotes a situation in which one of the participants commits himself to perform the action denoted by the infinitival complement. The deontic aspect of this verb may be summarised as in (11) below.

(11) THE DEONTIC ASPECT OF THE SUBJECT CONTROL VERB *love* ('PROMISE'):

    By his utterance, the actor (participant A) creates a social obligation for himself – the situation denoted by the infinitival complement, becomes "obligatory" for the actor himself.

If we compare the two generalisations in (8) and (11), we can see that the four verbs have an important feature in common. All the verbs denote situations in which a social obligation of some kind is laid upon one of the two participants in the control verb situation.

4   The classification of control verbs in WordNet

WordNet is an on-line lexical reference system, developed by the Cognitive Science Laboratory at Princeton University, whose design is inspired by current psycholinguistic theories of human lexical memory. English nouns, verbs, adjectives and adverbs are organised into synonym sets, each representing one underlying lexical concept. Basic sematic relations, such as hyponymy and antonymy, link the synonym sets. WordNet is thus a semantic "dictionary", designed as a relational network, with a deliberate limitation to paradigmatic relations and whole lexical items, rather than atomic meaning units. One of WordNet's goals is "[...] to characterize the structure of the verb lexicon and its representation as a part of speakers' linguistic knowledge" [Fellbaum *(ed.)* 1998, 69]. Hence, WordNet is primarily meant to be a model of speakers' psychology, not a dictionary in the usual sense.

In WordNet, verbs are first divided into two broad classes, verbs denoting actions and events on the one hand, and verbs denoting states on the other hand. Most verbs are of the former kind, so these are subdivided into 14 more specific semantic domains: verbs of motion, perception, contact, communication, competition, change, cognition, consumption, creation, emotion, perception, possession, and bodily care and functions, and verbs referring to social behaviour and interactions. In addition, there is a group consisting of static verbs which are elaborations of the concept 'be'. Also included in this group are auxiliaries and control verbs like *want, fail, prevent* and *succeed*, as well as aspectual verbs like *begin*. Some of these semantic domains can be further subdivided. Motion verbs, for example, have two root nodes, expressing two distinct concepts – *move1* expressing translational movement and *move2* expressing movement without displacement [Fellbaum *(ed.)* 1998, 70ff]. The WordNet classification of verbs was based partly

on the verb classes discussed in [Miller/Johnson-Laird 1976] and partly on intuition. Fellbaum does not, however, mention any criteria used in the actual process of deciding, in each individual case, which semantic domain the verb in question should belong to. This, too, then, must have been based chiefly on the individual lexicographer's intuition. At the same time, the classification in terms of semantic domains does not seem to have been of importance to the overall structure, cf. Fellbaum's remark (p. 71): "[...] what particular group a verb belongs to is of no great consequence, since in WordNet the meaning of a given verb is expressed primarily by its relations to other verbs and synsets".

The semantic relation *hyperonymy* or superordination, expressed in WordNet by the formula "to V is one way to...", gives us an indication of the verb class or semantic domain to which the verbs in question belong. The English counterparts to the Norwegian control verbs to be discussed in this section are the object control verbs *force, order, command, ask,* and the subject control verb *promise*, respectively. *Force* is described as in (12) below[4]:

(12) Sense 1

coerce, pressure, **force** – (to cause to do through pressure or necessity, by physical, moral or intellectual means :"She forced him to take a job in the city")

⇒ compel, oblige, obligate – (force or compel somebody to do something; "We compel all students to fill out this form")

⇒ induce, stimulate, cause, have, get, make – (cause to do; cause to act in a specified manner: "The ads induced me to buy a VCR"; "My children finally got me to buy a computer"; "My wife made me buy a new sofa")

The arrows indicate the relation between the verb sense in question and a more general superordinate. The root node is, if I have understood the WordNet structure correctly, supposed to correspond to the general concept or semantic domain, or at least indicate the semantic domain to which the verb sense belongs. *Force* must belong to a class of causatives, cf. the gloss 'cause to do; cause to act in a specified manner' in the root node. But unfortunately, there is no further specification in terms of the 14 semantic domains mentioned above.

As for the relevant senses of the object control verbs *order*, *command*, and *ask*, it suffices to repeat only one of them, namely *command*, since this sense comprises them all, cf. (13) below (the relevant senses of *order* and *ask* in boldface):

(13) **Sense 2**

command, require, compel – (make someone do something)

⇒ **order**, tell, enjoin, say – (tell somebody to do something; "I said to him to go home"; "She ordered him to do the shopping")

⇒ request – (ask (a person) to do something: "She asked him to be here at noon"; "I requested that she type the entire manuscript")

⇒ **ask** – (make a request or demand for something to somebody; "She asked him for a loan")

⇒ request, bespeak, call for, quest – (express the need or desire for; ask for; "She requested an extra bed in her room")

⇒ communicate, pass on, pass, put across – (let know; pass information on (to someone);); "Please communicate this message to all employees")

⇒ convey, transmit, communicate – (transfer or deliver to another, as of information; "convey the news to everyone")

⇒ transfer – (move from one place to another, as of information; "transfer the data"; "transmit the news")

⇒ move, displace – (cause to move; "Move those boxes into the corner, please")

The root node in this hierarchy indicates that the relevant senses of the verbs *command*, *order* and *ask* belong to the semantic domain of motion verbs. As mentioned above, this semantic field is further subdivided into two root nodes expressing two distinct concepts. The gloss in the root node of (13) – 'move, displace' – indicates that these verbs must belong to the first group, verbs denoting translational movement. This classification of the control verbs is intuitively not satisfactory. It conveys the impression that there is physical motion involved – movement from one location to another – which is semantically odd in connection with these verbs. The displacement factor is somehow too strong, semantically. Given that the motion aspect *is* a salient semantic property of these verbs, it would perhaps be more appropriate to classify them as verbs expressing movement in a more general – and hence abstract – sense, thus avoiding the displacement factor. It seems to me that the emphasis has been laid on the 'transfer' aspect of these verbs – cf. the node preceding the root node in (13) – and that the transfer factor entails the displacement factor in the WordNet ontology. The question is whether this transfer (and hence displacement) aspect of the verbs should weigh heavier than other aspects of the verbs, for instance their communicative and social aspect.

The relevant sense of the subject control verb promise is given in (14) below:

(14) Sense 2

promise – (promise to undertake or give; "I promise you my best effort")

⇒ declare – (state clearly: "He stated his name")

⇒ state, say, tell – (express an idea, etc. in words; "He said that he wanted to marry her"; "tell me what is bothering you"; "state your opinion")

⇒ express, utter, give tongue to – (articulate; either verbally or with a cry, shout, or noise; "She expressed her anger"; "He uttered a curse")

This hierarchy indicates that *promise* is a verb of utterance or speech act verb. But again, as with *force*, there is no further classification or specification of the relevant semantic domain involved here. Do speech act verbs belong to the class of verbs denoting communication? Or is it perhaps more natural to group speech act verbs among the verbs denoting social behaviour and interaction?

To summarise the discussion so far: In WordNet, the object control verb *force* is classified as a (kind of) causative, but the semantic domain is not specified any further in terms of the 15 groups. The other object control verbs discussed here, *order*, *command*, and *ask*, belong to the semantic domain of motion verbs, more precisely motion verbs which seem to involve some kind of physical movement from one location to another. To avoid the displacement factor, it would perhaps be better to classify them as verbs denoting movement in a more general sense. The subject control verb *promise* is classified as a speech act verb, but again, there is no further specification of the relevant semantic domain.

As I have argued in part 3 above, modality is an important aspect of the Norwegian control verbs, and I assume that this holds also for the relevant senses of the English control verbs. As WordNet looks today, this aspect is not reflected in any way. If the modal aspect of the verbs is emphasized, it is also possible to capture a connection between the object control verbs *force*, *command*, *order* and *ask*, and the subject control verb *promise*. In WordNet, there is no obvious semantic connection between *force* and the other object control verbs, or between the object control verbs and the subject control verb. How, then, can this modal aspect of these (and other) control verbs possibly be captured in WordNet as it looks today? First of all, it depends on how the concept 'modality' is defined. As mentioned in part 2 above, I understand the notion of modality primarily as a subjective semantic category, a relation that holds between the speaker and his/hers utterance. [Lyons 1977, 849] claims that "[. . .] modality, as it operates in a good deal of everyday language-behaviour, cannot be understood, or properly analysed, otherwise than in terms of the indexical and instrumental functions of language." Deontic modality seems to be an important tool in the instrumental use of language, being used to issue directives (i.e. commands and orders), grant permission and make requests – among other things. Modality thus plays an important role in interpersonal linguistic communication. The control verbs could possibly be classified differently if this communicative and social aspect were emphasized.

One possible solution, then, would seem to be that the relevant senses of the verbs discussed here should be classified as verbs of communciation and/or verbs of social behaviour and inter-actions, cf. the semantic domains mentioned above. But this is perhaps not as straightforward as it seems in the first place. A verb like *court*, which prototypically expresses (a special kind of) social interaction, is in fact classified as a verb expressing movement in general, cf. (15). One of the verb senses of *communicate* is classified similarly, cf. (16):

(15) Sense 3

   court – (engage in social activities leading to marriage; "We were courting for over ten years")

   ⇒ act, move – (perform an action; "think before you act"; "We must move quickly")

(16) Sense 2

   communicate, intercommunicate – (transmit thoughts or feelings; "He communicated his anxieties to the psychiatrist")

   ⇒ interact – (act together or towards others or with others; "He should interact more with his colleagues")

$\Rightarrow$ act, move – (perform an action; "think before you act"; "We must move quickly")

Does this mean that all verbs of communication and of social behaviour and interactions can be classified as motion verbs? Fellbaum's remark, quoted above, that it is of no consequence what group a verb belongs to, doesn't clarify the issue any further. Why operate with a specified number of semantic domains, if you are not going to use them, or if one or more of the domains are subsumed under some other semantic domain? The division of verbs into the various semantic domains must have served a different purpose for the creators of WordNet. But seen from the outside, WordNet seems to lack a principled account of the criteria used in the process of deciding the various verb senses' root node or general concept. If publicly available, such an account could probably have provided answers to some of the questions raised here.

5   Summary and concluding remarks

In this paper, I have first outlined an analysis of four Norwegian verbs, the object control verbs *tvinge* ('force'), *påby* ('order, command'), *be* ('ask'), and the subject control verb *love* ('promise'). I have shown that the object control verbs and the subject control verb have an important feature in common, which I have called their deontic aspect. This deontic aspect of the verbs has made it possible to establish a semantic connection between the heterogeneous control verbs. I have argued that the WordNet classification of the English counterparts of these control verbs is not satisfactory, chiefly because it does not capture the common feature of the discussed control verbs. There is no obvious semantic connection between *force* and the other object control verbs, or between the object control verbs and the subject control verb. I have also questioned the WordNet classification of *command*, *order*, and *ask* as verbs expressing translational movement, a classification which seems semantically odd. The analysis presented here suggests that the relevant senses of the control verbs belong to the semantic domain of communication and/or social interactions.

Notes

[1] In Searle's (1969) terminology, the felicity conditions.

[2] Participant A = the subject referent (the actor), participant B = the object referent (the recipient), X = the situation denoted by the infinitival complement.

[3] The verb *tvinge* ('force') can of course denote situations in which participant A exerts some kind of physical pressure on participant B, but force can also be exerted verbally, as is assumed here.

[4] I assume that the relevant senses of the English and Norwegian control verbs are semantically equivalent. Only the verb senses comparable to the Norwegian control verb pattern are given here.

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