THE SEMANTICS OF OBJECT CONTROL VERBS. SUBLEXICAL MODALITY AND SITUATIONAL CORE

EMIL IONESCU[1]
Universitatea Bucureşti

Abstract

The paper proposes an HPSG semantic analysis of object control verbs (OCVs). The aim is to build an analysis able to incorporate the idea that OCVs form a semantic natural class, without appeal to ad-hoc semantic concepts. In section 1 I describe the main properties of OCVs. In section 2 I present Pollard and Sag's (1994) analysis of OCVs, which is the starting point of my analysis. I show that Pollard and Sag's account contains the important idea that subcategorization regularities of these verbs are the consequence of the fact that they have a common semantic structure. This amounts to say that in fact OCVs form a (semantic) natural class. In subsection 2.2 I show, however, that one of the concepts used in Pollard and Sag's analysis, the semantic role INFLUENCED, is problematic in that it resists attempts of being characterized in terms of Dowty's role entailments (Dowty 1991), as long as it does not exhibit properties of undergoer (patient). As a consequence, in section 3 I prospect the chances of an alternative account, inspired by Davis (2001). I prove that this possible new approach has another drawback, namely it misses Pollard and Sag's hypothesis that OCVs form a semantic natural class. In section 4 I propose an analysis which recovers the hypothesis of OCVs as a semantic natural class and makes no appeal to ad-hoc semantic concepts. The analysis is based on Koenig and Davis' (2001) lexical semantics distinction between situational core and modal base.

Key words: *object control verbs, semantic role entailments, situational core, modal base*.

1. OCVs: characteristics and exemplifications

OCVs subcategorize for a subject NP, an object NP and a VP complement. The referential index of the object NP is the same with the one of the unexpressed subject of the VP complement. For example:

(1) (a) John made **Joanna** $_i$ [REFL $_i$ leave][2].
(b) John asked **Joanna** $_i$ [REFL $_i$ to leave].

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[1] Emil Ionescu is a professor of general linguistics at the University of Bucharest, Faculty of Letters, and the director of the Center for Computational Linguistics of the same faculty. Email: emilionescu@unibuc.eu

[2] In describing the unexpressed subject NP of the VP complement as a reflexive, we follow the analysis of Pollard and Sag (1994): 302.

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OCVs are well represented crosslinguistically. In English, for instance, some samples are *order, persuade, bid, command, instruct, advise, authorize, mandate, convince, induce, inspire, motivate, pressure, compel, push, spur, ask* etc (Pollard and Sag 1994: 286). In the following sections, we will deal with OCVs in Romanian, but the conclusions of the investigation may be extended to the case of OCVs in English, as well. The equivalents of (1) (a)-(b) in Romanian are the following:

(2) (a) Ion a făcut-o pe Ioana să plece.
John have made-herACC-CLITIC on Joanna leave-SUBJUNCTIVE
'John made Joanna leave'

(b) Ion i-a cerut Ioanei să plece.
John herDAT-CLITIC have asked JoannaDAT leave-SUBJUNCTIVE
'John asked Joanna to leave'

A semantic difference between verbs within this class may be rendered visible by means of a certain inference pattern. Thus, it is only (2) (a) which allows for the logical consequence(3):

(3) Ioana a plecat.
'Joanna left'

Indeed, from the mere fact that John asked Joanna to leave, one cannot draw the inference that Joanna really left. Thus the consequence mentioned above with respect to (2)(a) becomes a means which can be used to distinguish two subclasses of OCVs. We will conventionally term verbs which allow for unrestricted inferences of type (3) „*true* causative verbs". On the other hand, OCVs which do not allow for this unrestricted inference will be called „modal causatives" [3] [4]. Some examples of true causatives that are at the same time OCVs are a obliga (oblige, compel) a convinge (persuade), a forţa (force), a determina *(determine)*. Modal causatives, on the other hand, are a significantly larger class. We give merely a couple of samples:

[3] Both true and modal causatives fall within the range of verbs referred to as "analytic causatives" in Comrie (1989): 167.

[4] The exact conditions under which a modal causative like *to ask* in *John asked Joanna to leave* still allows for an entailment like *Joanna left* will be described later on**.** For the time being, it suffices to specify that a true causative is not subject to any restriction, as far as the pattern of entailment in (2)(a)-(3) is concerned.

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a avertiza (warn), a invita (invite), a cere (ask), a porunci (order, command), a indica (indicate), a solicita (ask, request), a pretinde (claim, pretend), a sugera (suggest), a propune (propose), a recomanda (recommend).

2. Pollard and Sag's influence relation

In Pollard and Sag (1994): 287 it is made the hypothesis that OCVs have the same semantic structure, identified by the authors with the property (relation) of influence (hereinafter, *influ-rel*). Pollard and Sag do not explore in details the consequences of their proposal. On the contrary, they draw attention to the fact that their hypothesis requires a more careful examination, before being accepted[5].

In spite of this warning, their proposal has an important and obvious advantage. It presents OCVs as a semantic natural class. In so doing, Pollard and Sag offer a real explanatory alternative to the purely grammatical account of control verbs (criticized among others by Radford 1981: 381). It is true, the authors do not refer explicitly to the concept of semantic natural class, nor do they define the term. Nevertheless, their proposal is fully compatible with the definition of semantic natural class given in Koenig and Davis (2001). According to these latter authors,

"…what makes the sets of verbs in a series a natural class [is the fact that] they all share a common situational core. They belong to a common category of relations between situation participants…" (Koenig and Davis 2001: 106)

For this reason Pollard and Sag's hypothesis deserves a closer examination, as far as the nature of its consequences is concerned. In the next two sections, we will proceed to such an examination, by attempting to determine (i) what are the participants in an *influ-re*l, (ii) what entailments may be associated with each participant[6] and (iii) what semantic role may be properly assigned to each participant.

2.1. Participants and participant-specific entailments in an influ-rel

As Pollard and Sag specify, the *influ-rel* describes a class of situations with three participants: an influencer, an influenced and a state of affairs which describes the actual (or merely the intended) result of the influence.

Regarded in the perspective of entailments associated with participants in a situation, these participants look as follows.

[5] Pollard and Sag (1994):287, fn. 4

[6] We use here the concept of entailment in Dowty's sense, that is, participant properties relevant for semantic roles, which can be inferred from a given situation (Dowty 1991).

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- *The influencer* may be characterized either by the causal action over the influenced participant, or merely by his/her goal to influence the other participant. In both cases it exhibits Proto-agent properties, because causation, volition and the ability of building mental representations (which are implied in an influence situation) all qualify as such entailments.
- *The influenced* might be characterized as that participant which undergoes (or is supposed to undergo) the influence exerted by the influencer. In the situation of true causatives, this counts as an indisputable Proto-patient entailment. Nevertheless, this cannot be a fair characterization of modal causatives, as well, because modal causatives leave open the change of state of the influenced, and therefore do not allow to treat it as a real Proto-patient participant.
- Finally, *the result* of the influence seems to be also characterized as a Proto-patient entailment. This is because what is intended to obtain – the result - may be considered a mental representation of the situation in which the influencer wishes to see the influenced.

2.2. Semantic roles in the HPSG representation of the influ-rel

In the language of feature structures proposed in Davis (2001) for encoding the nuclear semantic information of words in HPSG, an *influ-rel* and its roles receive the following translation.

- The influencer has to be encoded as a (content) value of the Proto-role attribute ACT(or): [ACT: *ncv*] (where *ncv* means „nonempty content value")
- The result of the influence is to be encoded as a content value of the Proto-role attribute S(tate)O(f)A(ffairs): [SOA: *rel*] (where *rel* means a variable of relation. For proto-role attributes in HPSG, see Davis 2001:132)

The critical point remains the representation of the influenced participant. As already shown, the *influenced* differs in its properties, according to the type of causative it belongs to. The *influenced* is a causee, if it is involved in the semantic representation of true causatives. In this situation, it has to be represented as the value of the proto-role attribute UND(ergoer), which, in HPSG, encodes Proto-patient properties: [UND: *ncv*].

On the other hand, if the influenced participant plays the role featured by a modal causative, it cannot be, strictly speaking, represented as an undergoer, because it remains an open issue whether the influenced has been affected by the action of the actor. A special role attribute is then required, perhaps one which means „intended undergoer" (INT-UND). This opens the possibility of treating the two semantic roles, UND and INT-UND, respectively, as two more

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specific instances of only one more general semantic role, the one denoted in Pollard and Sag's approach by *influenced*. The following entailments ought to hold for it.

INFLUENCED

(a) If x has a property of UND, then x also has a property of INFLUENCED
(b) If x has a property of INT-UND, x also has a property of INFLUENCED.

Apparently, this proposal is acceptable. It seems to reflect the canonical procedure in HPSG, which consists in introducing new features (and feature structures), whenever needed. The problem, though, is that any approach which saves the idea of OCVs as a semantic natural class *without increasing the number of semantic role attributes* is preferable to the one proposed above. That is, we are looking for a semantic analysis in which the idea of OCVs as a semantic natural class may be justified with no help from the part of concepts *influ-rel*, INFLUENCER or INFLUENCED [7]. Such an analysis is therefore expected to ultimately rely on concepts such as actor, undergoer, state of affair, or causal relation, that is, on concepts the adoption of which is independently motivated in the semantic analysis (for such an inventory of concepts, see Davis 2001: 131-132)

3. A solution in Davis (2001)

Davis (2001:133) suggests that the properties of the influenced participant in the situation described by the verb *ask* might be labeled by the role attribute SOA. The verb *ask* is called here just a „modal causative", so Davis' proposal may be considered relevant for our discusion.

In HPSG, SOA is not only used to identify relations (like in its previous token here). It is also employed to express a mental representation or attitude. For instance, a relation actor-state of affairs (*act-soa-rel*) holds in the case of the verb *love*: he who loves is the actor (ACT) and he who is loved is the state of affairs (SOA). Something similar seems to happen in the case of a modal causative.

Unfortunately, in spite of its empirical plausibility, this proposal cannot be adopted, as Davis himself notices: under this hypothesis, in the semantic

[7] Obviously, at the time of the publishing of their analysis, Pollard and Sag did not have the possibility of such an approach, simply because HPSG lexical semantics was not enough elaborated.

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representation of a verb such as *ask (somebody, something),* the attribute SOA would be used twice, which means the violation of one of properties of unification - consistency. Consequently, Davis has an alternative proposal which is to supplement the inventory of proto-role attributes with one more, called SOA2 (where SOA and SOA2 are of course different).

This new hypothesis solves indeed the difficulty, but only at certain costs. On the one hand, one resorts again to a further semantic role – SOA2. On the other hand, one misses the idea that object control verbs form a semantic natural class. Thus, true causatives (like *a face – make*) have to receive the representation in Figure 1, whereas modal causatives (like *a cere – ask*) have to look as in Figure 2 [8].

$$\begin{bmatrix} ACT : ... \\ UND : \boxed{1} \\ SOA : rel\left[ACT : \boxed{1}\right] \end{bmatrix} \qquad \begin{bmatrix} ACT : ... \\ SOA : \boxed{1} \\ SOA2 : rel\left[ACT : \boxed{1}\right] \end{bmatrix}$$

Fig. 1. AVM(*cause-und-rel*) *Fig. 2.* AVM(*act-soa-soa2-rel*)

Recall that, according to the definition of semantic natural class mentioned above, such a class is characterized by a common category of relations between situation participants. Representations above show that this is not the case with true and modal causatives.

One has thus reached a double impass. On Pollard and Sag's analysis we have a valuable intuition: OCVs are a semantic natural class. Nevertheless, as shown above, the semantic representation adopted in this approach creates difficulties in characterizing the INFLUENCED role and invites to an *ad-hoc* solution - the adoption of the INT-UND role attribute. On the other hand, the analysis built on the basis of Davis' suggestions misses the justification of the idea that OCVs form a semantic natural class. In addition, the *ad-hoc* resort to semantic role attributes is not avoided, either.

4. An alternative solution: exploiting sublexical modality

In spite of the difficulties ascertained above, it is still possible to keep the intuition of the semantic natural class. The solution is to assume - following Koenig and Davis (2001) - the distinction between two meaning components, sublexical modality and situational core, respectively.

According to Koenig and Davis (2001), the situational core of a lexical item describes a class of situations, along with their specific participants. The

[8] See also Davis (2001): 97 and 131.

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modal base, on the other hand, evaluates this class of situations with respects to appropriate worlds, that is, worlds in which the situations take place. A modal base represents just a sublexical modality. A modal base may be empty. In this case, what is described by the situational core is part of the actual world.

Let us now apply this distinction to the pair *a face (make) -a cere (ask)*, in the contexts below:

(4) (a) Ion a făcut-o pe Ioana să plece.
'John made Joanna leave'

(b) Ion i-a cerut Ioanei să plece
'John asked Joanna to leave'.

It has been said above that, unlike (a), (b) does not allow for the logical consequence that Joanna left. What has to be now specified in addition is that this consequence holds, provided that certain conditions are met. Namely, if the world is such that an act of asking determines the expected behaviour, then what is asked is a true causal factor, just like persuadation or other standard causal actions. Consequently, asking *is* a causal factor with respect to a given class of appropriate circumstances.

Suppose now that these circumstances are noted by W^{ask}. What has been said so far may then be represented as the following condition on asking.

C(sublex-mod^{ask}) With respect to a class of worlds W^{ask}, in which every asking is observed by its addressee, if John asked Joanna to leave, then John made Joanna leave in W^{ask}.

It may be now noticed that the modal meaning component can be assigned to the whole subclass of OCVs, called here modal causatives. It is just the modal base which makes the difference between true causative verbs (like *a face - make*) and modal causatives (like *a cere – ask*). In the case of modal causatives, the modal base is present under various forms[9]. In the case of true causatives, it is missing. True causatives, therefore, are verbs with no sublexical modal component.

4.1. Sublexical modality in HPSG

According to Koenig and Davis (2001), in HPSG, the situational core and the modal base are encoded by means of the attributes SIT-CORE and

[9] See Koenig and Davis (2001): 86-87. The type of sublexical modality convenient to modal causatives seems to be either the deontical or the energetical one.

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MODAL-BASE, respectively. Their values are relations (*rel*s). In the case of SIT-CORE, the relation is one of the kind described in Figure 1 (AVM(*cause-und-rel*)) or 2 (AVM(*act-soa-soa2-rel*)). In the case of MODAL-BASE, the value is also a relation, this time a modal one. Modal relations form an hierarchy (Koenig and Davis 2001: 104). At the same time, a modal relation obligatorily labels a feature structure with a SOA attribute. The value of this SOA is exactly the relation defined in the situational core.

In the case of the verb *a cere (ask - „John asked Joanna to leave")* all these ingredients participate in expressing the fact that the causal situation described in the situational core takes places with respect to a class of worlds described by the modal base.

$$\begin{bmatrix} \text{ask - sem} \wedge cause-und-rel & \\ SIT-CORE : \boxed{1} cause-und-rel & \begin{bmatrix} ACT : ... \\ UND : \boxed{2} \\ SOA : mot-rel\left[FIG : \boxed{2}\right] \end{bmatrix} \\ MODAL-BASE : deontic-mb\left[SOA : \boxed{1}\right] & \end{bmatrix}$$

Fig. 3. Partial semantic representation of the content of the OCV *a cere (ask)* in the sentence Ion i-a cerut Ioanei să plece '*John asked Joanna to leave'*

The semantic representation of the OCV *a cere (ask)* is therefore a conjunction of semantic types (*ask-sem∧cause-und-rel*). It has a situational core which is a relation of type *cause-und-rel*, and a modal base. The core situation features an actor (which initiates the causal action), an undergoer (which is affected by the action of the actor), and a state of affairs, in which it is described the result of the causing action. The result, in our case, is a motion event (*mot-rel*), having as a main participant the same participant - called ‚figure' (FIG) - which underwent the causal action.

The situation denoted by tag 1 (in Figure 3) is also the value of the SOA attribute. This feature structure is labeled *deontic-mb*, fact which means that the causal relation denoted as tag 1 is restricted to the set of worlds in which what is asked to a person becomes compelling for that person.

Here is now the representation of the verb *a face (make)*, according to the new frame proposed above.

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$$\begin{bmatrix} make-sem \wedge cause-und-rel & \\ SIT-CORE: cause-und-rel & \begin{bmatrix} ACT: ... \\ UND: |2| \\ SOA: mot-rel[FIG: |2|] \end{bmatrix} \\ MODAL-BASE: ev & \end{bmatrix}$$

Fig. 4. Partial semantic representation of the content of the OCV *a face (make*) in the sentence *Ion a făcut-o pe* Ioana să plece '*John made Joanna leave'*

As it may be noticed, the difference lies precisely in the modal base component. In the case of verb *a face (make),* the MODAL-BASE attribute has empty value.

Of course, what has been shown for the contrast *a face-a cere (make-ask)* hold for the two subclasses of object control verbs themselves, that is, true and modal causatives, respectively. What could be distinct concerns the class of modal causatives, in which the type of modal relation may, of course, differ from case to case.

Conclusion

The relevance of these representations for the issue discussed here is now obvious. According to the distinction situational core-modal base, there is a crucial sameness between true and modal causatives. Namely, their situational core is identical. This corresponds to the above mentioned definition of semantic natural class proposed in Koenig and Davis (2001).

The intuition that OCVs represent such a class is thus saved without *ad-hoc* assumptions.

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