

THE INTERPRETATION OF VP COMPLEMENTS OF DEONTIC MODALS

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Abstract. *The squib points to the empirical and theoretical problems arising from attempts to account for presupposition in VP complements of deontic modals. Two approaches are discussed: Barbiers (1995)'s model of deontic modality and the **irrealis** analysis of infinitival complements. On the basis of the arguments provided, it is established that presupposition in VP complements of deontic modals is not the result of the syntax-to-semantics mapping but is primarily due to pragmatic inference.*

Key words: *deontic modality, modal verbs, presupposition, **irrealis***

1. INTRODUCTION

Barbiers (1995) argues that a sentence containing a modal verb receives a deontic interpretation (i.e. expresses obligation or permission) due to the semantic parameter *polarity transition*, which is defined as a change of the truth-value of the complement of a modal. Thus the example in (1) presupposes that *there is no event of you being honest* at a stage t_1 and that *an event of you being honest is obligatory* at a stage t_2 , i.e., the embedded complement *you are honest* is presupposed to be false at t_1 and is required to be true at some subsequent t_2 :

- (1) You must be honest.

Furthermore, as the more general selectional restriction on a modal requires that its complement denote a value on a bounded lattice which, in the case of a deontic modal taking a VP complement, is a numerical scale with 0 as its lower bound and 1 as its upper bound (Barbiers 1995: 164, 172), the interpretation of (1) can be restated as a requirement that the cardinality of the event denoted by the VP switch from 0 to 1.

The assumption that VP complements of modals involve polarity transition in deontic contexts is reminiscent of the frequently assumed analysis of subjunctive and infinitival complements of some classes of verbs (including directive and permissive ones), which

are argued to select an [irrealis] operator which, in turn, selects a subjunctive or infinitival INFL (see Han 1999b, Kempchinsky 1987, and Zanuttini 1991, among others). As the [irrealis] feature encodes the modality of unrealized interpretation (Han 1999), the events denoted by complements of [irrealis]-selecting verbs receive a future time orientation with respect to the event time of the matrix predicate. This is essentially what Barbiers' polarity transition subsumes, as the event denoted by a bare infinitival complement of a deontically-interpreted modal is understood to be unrealized at the reference time of the matrix modal (i.e. its cardinality is 0, its truth-value 0), and its realization (i.e. a switch of its cardinality and truth-value to 1) is required/permited at a stage understood to be future with respect to the reference time of the modal. Put differently, a deontic sentence is about the obligation/permission that a presupposed *irrealis* eventuality turn into a *realis* one¹.

Plausible though the above approach may seem at first sight as it accounts for the notorious future time interpretation of the modal's complement in deontic contexts, counterexamples to it can easily be found that do not involve polarity transition and, therefore, do not presuppose the falsehood (or the *irrealis* reading) of the complement of a modal. The aim of this squib is to point to the empirical and theoretical difficulty the above approach runs into, rather than providing a sound and articulated theoretical solution to the problem herein discussed. In Section 2, I will first discuss the parameter polarity transition in conjunction with the *irrealis* approach to infinitives (2.1.) and then turn to the selectional restriction on complements of modals by considering individual-level predicates in deontic contexts (2.2.). On the basis of the arguments presented in this section, it will be established that the interpretation of VP complements of deontic modals does not result from the syntax-to-semantics mapping, but is primarily due to pragmatic inference. Section 3 contains some concluding remarks on the position advanced throughout the squib.

2. TESTING THE GROUND

In this section, some counterexamples to the two requirements proposed by Barbiers (1995) will be provided and analyzed. I begin with polarity transition, according to which the truth-value of the modal's complement is required/permited to switch from the presupposed 0 to the obligatory/permited 1. The discussion of this parameter will be accompanied by the *irrealis* approach to infinitivals. Then I turn to the selectional restriction on a modal, according to which a modal is a qualifier of a VP complement which denotes a value on a cardinality scale. The examples to be analyzed are provided with appropriate contexts so as to favour the intended readings.

2.1. Polarity Transition and the *Irrealis/Realis* Distinction

Assuming the parameter polarity transition is essential to a deontic interpretation, the examples in (2) and (3) are found to readily conform to the requirement:

- (2) A: You must be honest. Do you understand?
 B: Yes, and I am sorry I wasn't. I promise that from now on I will always be.

¹ From now on, I will be using the widespread term *eventuality* instead of *event* as a cover term for both states and events.

- (3) A: You may interrupt me whenever you have a suggestion.
B: I'll have that in mind.

As the contexts in (2) and (3) show, it is presupposed by A in (2) that *there is no eventuality of B's being honest* at a stage t_1 and that *an eventuality of B's being honest is obligatory* at a stage t_2 ; and that in (3) the speaker A presupposes that at t_1 *there is no eventuality of B's interrupting A whenever B has a suggestion* and that *an eventuality of B's interrupting A whenever B has a suggestion is permitted* at t_2 . In other words, in both (2) and (3), the cardinality and the truth-value of the embedded eventualities are presupposed to be 0, and what is obligatory/permitted is that both the cardinality and the truth-value change, i.e. switch from 0 to 1.

However, when the modal sentences in (2) and (3) are each supplied with a different context, such as those in (4) and (5), the interpretations provided for them in (2) and (3) are no longer available. In order for the lines uttered by A in (4) and B in (5) to be felicitous, we must presuppose that in (4) *there is an eventuality of B's being honest* at any t_n , $n \leq 1$, and that *an eventuality of B's being honest is obligatory* at any t_n , $n \geq 2$; and that in (5) at t_1 *there is an eventuality of A's interrupting B when A has a suggestion* and that *an eventuality of A's interrupting B when A has a suggestion is permitted* at t_2 . In (4) and (5), contrary to Barbiers' proposal, the value of both the presupposed truth and the cardinality of the embedded event is 1 at either stage, and what is obligatory/permitted is that neither the truth-value nor the cardinality change:

- (4) A: You must be honest.
B: But I always am!
A: I know. I just want to make sure that you always will.
- (5) A: Sorry for interrupting you for the third time, but I have one more suggestion.
B: It's OK. You may interrupt me whenever you have a suggestion.

Note that in the spirit of Jäger (2001) and Marelj (2004), the predicate *(be) honest* in (4) is semantically interpreted as an individual-level predicate (a characteristic property of B) as it is true of B at any stage $t_{n \leq 2}$. This would make *(be) honest* in (4) unavailable in deontic contexts. As Barbiers (1995: 170-171) correctly observes, individual-level predicates such as *tall* cannot embed under a deontically-interpreted modal, as characteristic properties of individuals are not prone to a cardinality switch: if you are tall at t_1 , then you are tall at t_2 as well, and nothing can affect the property of your tallness. Thus the sentence in (6) is automatically canceled out as deontic as the modal's complement does not denote an eventuality on a cardinality scale:

- (6) You must/may be tall. (#You are obligated/permitted to be tall.)

Crucially, however, the predicate *(be) honest* differs from the original Carlsonian class of individual-level predicates (Carlson 1980) such as *tall* in that it can be modified by an item requiring a bound (*never honest*/**never tall*; *sometimes honest*/**sometimes tall*; *half-honest*/**half-tall*). This suggests that, whereas the selectional restriction on a modal (its complement must denote a value on a bounded lattice) seems to be indispensable to a deontic reading, polarity transition is too strong a requirement. As the sentences in (2-5) demonstrate, two options seem to be in effect in the course of decoding the meaning of deontic modals. A deontic interpretation can arise either (i) from change in the truth-value of an embedded eventuality, as in (2) and (3), or (ii) from confirmation

of its truthfulness, as in (4) and (5). If (i) holds, both the cardinality and the truth-value must switch from 0 to 1, but if (ii) applies, it is obligatory/permitted that neither change as both are already presupposed to be of the value 1. Employing the *irrealis/realis* distinction (i) would imply an *irrealis*-to-*realis* change while (ii) would subsume that a *realis* eventuality is available both at the reference time of the modal and at the time subsequent to it.

If we agree to adopt the analysis of deontic sentences based on polarity transition or the *irrealis/realis* distinction, then we will have to assume that semantic information on the cardinality or *irrealis/realis* status of bare infinitival complements is directly encoded in syntax. For Barbiers, the underlying structure of a deontic sentence is of the form given in (7), where R is the site of the embedded verb, Ind is the assigner of the cardinality 1 to the event denoted by R (that is, V), Mod is a modal qualifying the cardinality 1 assigned to R by Ind, and DP is an abstract determiner phrase (not to be identified with a nominal) to which the subject moves out of the [Spec, IndP] and establishes a determining relation with Mod through the abstract D:

- (7) ... [DP [D [ModP [Mod [IndP [subject] [Ind] [RP [R]]]]]]]

On the *irrealis* approach, the [irrealis] feature projects into the C head of an infinitival CP, forming a chain with the infinitival INFL and directly contributing the *irrealis* interpretation to the embedded infinitive, as in (8):

- (8) ... [CP [C [irrealis] [IP [INFL [VP [V]]]]]

However, neither are all infinitival complements CPs (moreover, they are standardly treated as IPs or, if bare, are frequently taken to be VPs) nor is direct mapping of syntax onto semantics a widespread property of natural language. For the sake of argument, let us assume that the information about the bare infinitival complement of a modal is encoded in syntax. In that case, the *irrealis* syntactic approach would require a close inspection so as to allow for the presuppositions in (2-6) to be syntactically encoded in a structure that embeds only a bare infinitive. Even if modified, the new structure would not be able to accommodate the examples in (5) and (6) which have been shown above not to lead to the [irrealis]-driven presupposition.

Barbiers' model appears to be less problematic in this respect and, compounded with the evidence in (5) and (6), requires only a minor modification. Thus, instead of saying that the Ind head of IndP assigns the value 1 to the 0-valued embedded eventuality, we might say that the function of the Ind head of IndP in (7) is to make sure the embedded eventuality to be qualified by Mod has the value 1, irrespective of whether its presupposed cardinality is 1 or 0. Before we attempt to make any conclusive decision about this modified analysis, the requirement on the selectional restriction on a modal needs to be considered first.

2.2. Selectional Restriction and Individual-Level Complements

As mentioned in Introduction, one of the requirements on modals expressing obligation/permission is that their VP complements denote a value on a bounded lattice. This requirement was shown useful when accounting for the unacceptability of individual-level predicates in deontic sentences. The example (6), repeated here as (9), was ruled out due to the fact that the predicate *tall* does not denote an eventuality on a cardinality scale:

- (9) You must/may be tall. (#You are obligated/permitted to be tall.)

Han (1999a:5), however, provides an example, cited below as (10), which, in addition to expressing the speaker's desire as to the physical appearance of his/her blind date, can also have an interpretation in which the addressee, i.e., the person setting up the blind date, has the obligation to provide a tall date:

- (10) My blind date must be tall.
(You are obligated to find me a tall date.)

Assuming individual level-predicates are banned in deontic contexts, the availability of a deontic reading in (10) is extremely puzzling. At the same time, due to the individual-level nature of the predicate *tall*, the presupposition "*my date is tall*" is false at t_1 and it is obligatory that *my date is tall* be true at t_2 cannot be qualified.

What makes the presupposition based on polarity transition utterly nonsensical seems to lie not in the nature of the individual-level predicate *tall* but in the semantic properties of the subject *my blind date*, which, although syntactically a definite description, behaves in (10) like an indefinite DP with a *de dicto* (i.e. non-referential) reading. Furthermore, in no context can the subject DP in (10) get a *de re* (i.e. referential, presuppositional) interpretation, contrary to a typical indefinite that gives rise to both readings, provided an appropriate context. Thus the interpretation of (10) would be something along the lines in (11), not (12):

- (11) *You are obligated to find me a blind date x (whomever he/she might be) such that x is tall.*
(12) *#There is one specific blind date x who is tall such that you are obligated to find x.*

The non-referential, narrow-scope interpretation of the subject *my blind date* relative to the modal *must* is crucial here, as this is what makes (10) interpretable as deontic, as opposed to the syntactically identical but presuppositionally different (9) that does not give rise to a deontic interpretation. In (9), due to the referential *you*, the subject pronoun denotes both the bearer of obligation and the individual that has the property of being tall (hence its wide-scope reading), thereby leading to the unacceptable *you have the obligation that you be tall*. In (10), on the other hand, the subject *my blind date* is only associated with an individual (whomever he/she might be) with the property of tallness, but not with the individual who acts as a bearer of a particular obligation (hence a narrow-scope reading of the subject). The result is the acceptable *you have the obligation to find me a tall blind date*. In other words, in (9) the bearer of obligation and the individual with the property of being tall are coreferential, while in (10) no coreference is established between the subject and the bearer of obligation. It follows that individual-level predicates are legitimate complements in deontics as long as their subjects allow for non-referential readings.

It is along the similar lines that I argued in Milić 2006 that the logical form (LF) of any deontic sentence contains a free individual variable standing for the bearer of obligation/permission, the value of which is contextually supplied. Think of it as of a free-choice function of the type proposed by Kratzer (1998) that picks up a unique referent from the utterance context. In addition, a silent operator is postulated whose meaning is BRING ABOUT, so any deontic sentence conforms to the general pattern in (13), where x_{MOD} stands for the bearer of obligation/permission, y for the syntactic

subject, P for the embedded predicate, and the (in)equality sign for (non)coreference between x_{MOD} and y :

- (13) For x_{MOD} , it is necessary/possible that x_{MOD} bring about that $[y, P]$, where $x_{MOD} = y$ or $x_{MOD} \neq y$.

Two things are crucial in (13). Firstly, the presence of the BRING ABOUT operator forces only a dynamic interpretation with respect to the embedded VP, without resorting to or necessarily assuming the cardinality, truth-value or *irrealis*-to-*realis* switch. What is obligatory/permitted is that some action be undertaken such that the embedded eventuality denoted by the complement holds. Secondly, although x_{MOD} is projected at LF, its value, which is a key to the semantic relation between the modal and its subject, is not encoded in the syntax proper but is pragmatically inferred. When applied to the examples in (9) and (10), the structure in (13) excludes (9) but qualifies (10), each on pragmatic grounds.

What the arguments presented here suggest is that the requirement that the modal's complement denote a value on a bounded lattice cannot be part of the selectional properties of modals, contrary to what Barbiers assumes. His analysis of individual-level predicates would account for the examples such as (9) but not for those illustrated in (10). In addition, as a polarity interpretation is wholly built up on the stipulation that deontics select VP complements that denote values on bounded lattices, the requirement for polarity transition should be abandoned as well. Even with the few examples considered here, it seems most convincing that presupposition in VP complements of deontics cannot be derivable from a syntactic structure nor can it be constrained by the semantic principles that Barbiers proposes.

3. CONCLUDING REMARKS

Although I have been advocating a weak-semantics–strong-pragmatics position with respect to the interpretation of VP complements of deontic modals, my intention was not to say that something similar to polarity transition plays no role whatsoever in decoding the semantics of VPs in deontic sentences. Construed as it is, polarity transition may well be the default choice in modal reasoning. If not, then the protesting remark uttered by B in the example in (4), repeated here as (14), would not be a felicitous reply to the obligating sentence uttered by A:

- (14) A: You must be honest.
 B: But I always am!
 A: I know. I just want to make sure that you always will.

The objection made by B in (14) may suggest that we intuitively understand obligations and permissions as calls for transition from a stage at which some eventuality has not been brought about to a stage at which that eventuality is required/permitted to be brought to life. However, if this were the whole story, A's final explanatory lines in (14) would leave us with no argument to defend such a position.

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SEMANTIČKA INTERPRETACIJA VP-DOPUNA DEONTIČKIH MODALA

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*Rad ukazuje na empirijske i teorijske probleme koji se javljaju u pokušaju da se objasni presupozicija u VP-dopunama deontičkih modalnih glagola. Razmatraju se dva pristupa: Barbiersov (Barbiers 1995) model deontičke modalnosti i analiza infinitivnih dopuna zasnovana na obeležju **irrealis**. Na osnovu prezentovanih argumenata, nameće se zaključak da presupozicija u VP-dopunama deontičkih modala nije rezultat direktnog preslikavanja sintaksičke informacije u semantičku komponentu jezika, već je, prvenstveno, rezultat pragmatičkog rasuđivanja.*

Ključne reči: deontička modalnost, modalni glagoli, presupozicija, **irrealis**.