



3-1-2015

Imperatives as Underquantified Propositions

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1. Introduction

When we issue an order or express a request or a suggestion with an imperative we are also able to rephrase the proposition by using a deontic modal expression. The same is true for deontic modal expressions which can be rephrased with an imperative proposition. Think of the following examples:

- (1) a. Akugh-**e** tus ghonis su *order* (\forall)
Listen-**2sg.IMP** **the parents** **your**
Listen to your parents!
- b. **Prepi** na akus tus ghonis su. *deontic*
Must-**3sg.INP** to listen.2sg the parents your
You **have to** listen to your parents.

In the examples shown in (1a) the sentence containing an imperative expresses an order (and in other situations an instruction or a command) can be rephrased to the sentence in (1b) which contains a deontic modal *prepi* 'have to' and expresses how the world ought to be according to certain norms established by society or individual. Conceptually, there is no difference when substituting an imperative with a deontic modal or a deontic modal with an imperative. Requesting, giving the permission or the opportunity to someone or expressing the willingness to achieve something can also be rephrased to a bouletic sentence with no much difference in meaning, for example:

- (2) a. Pare ena sokalataki! *invitation* (\exists)
Take-**3sg.IMP** one chocolate
Have a chocolate!
- b. Boris na paris ena sokalataki. *bouletic*
May-**2sg.INP** to take one chocolate
You **may / should have** a chocolate

The bouletic sentence (2b) that signifies how the world can be according to the desires and/or requests of society or individual shares the same meaning with the sentence in (2a) which contains an imperative expressing one's invitation (a desire, a request).

Finally, indicating or proposing how the world should be with an imperative (3a) does not differ much from the sentence in (3b) which means the same thing but with a deontic modal *tha prepi* 'should', for example:

- (3) a. Kane pio sihna dhialimata *suggestion* (\exists)
Make-**2sg.IMP** more often breaks
Take a break more often.
- b. (Tha) prepi na kanis pio sihna dhialimata *teleological*
(FUT) must-**3sg.INP** to make more often breaks
You **should take** a break more often.

In this paper however we will see that despite the interpretational relation between imperatives and deontic modality, imperatives constitute a distinct case of an underquantified modal operator which receives a wide range of interpretations, represent as either with a universal or an existential quantifier (see (1) – (3)), due to its underquantified modal base.

2. Current Theories

The common assumption of treating imperatives and deontic modality in a similar way is shared by two different theoretical approaches: (1) Dynamic theories and (2) Modal theories.

2.1 Dynamic theories

Portner (2004, 2005, 2007, 2009, 2012) argues that imperatives, on the one hand, are not propositions but properties added to the To-Do-List (TDL henceforth) which represents the requirements that an addressee in discourse has to and will bring about. Deontic modals, on the other hand, such as *must* should be treated on a par with imperatives as they contain an imperative-like component that ensures the performative (speech act) meaning of a modal expression. In other words, the covert imperative-like component a deontic modal contains signifies that the speaker attempts to achieve something by uttering a locution. In such an approach deontic modals add requirements to the TDL of an addressee (Ninan 2005; Portner 2007, 2009) who, in turn, is committed to realize them, for example:

To-Do-List

A set of properties assigned to be met by the addressee, induces a partial order on the set of possible worlds and indicates what the highest priority amongst others for the addressee is.

Pragmatic Function of Priority Modals:

A To-Do-List function T assigns to each participant (addressee) α in the conversation a set of properties T (α) (s)he is committed to fulfill.

The analysis offered by Portner treats imperatives as a strict commitment from both speaker and addressee in committing themselves to the realization of what was uttered allowing no deviations. However, the imperative concept is quite different in natural languages. Imperatives express an intention to influence one's actions and behavior but they do not commit to the planning out or even more, to the realization of an intention. Issuing an imperative does not mean that there is in fact a norm under which an order has been licensed, for example:

- (4) a. Has-u apo ta matia mu ⇔ # *Ise ipohreomenos* na hathis apo ta matia mu
 Lost-2sg.IMP from the eyes my
 Get out of my eyes
 b. Get lost ⇔ # *You are obligated* to get lost

Similarly, expressing a deontic modal expression does not mean that the speaker issues an order, although there might be a norm under which the deontic modal expression was uttered. The speaker might use the deontic modal expression to attract attention or action towards a goal and not an actual intention to influence, for example:

- (5) a. Prep-i na djavasis to mathima su ⇔ *Djavase* to mathima su
 Must-3sg.INP to study the homework
 You have to do your homework
 b. You have to do your homework ⇔ *Do* your homework

Dynamic theories cannot accommodate cases where imperatives and deontic modality deviate from what is considered likely. Thus, we seek an analysis which incorporates the deviations in meaning that both imperatives and deontic modal verbs offer.

2.2 Modal theories

In the second approach, imperatives contain a covert modal operator (Han 1998, 1999, 2001) which is either always universal and existential readings are derived via pragmatics (Schwager 2005a, 2005b, 2006a; as Kaufmann 2012) or ambiguous between an existential and a universal reading (Grosz 2008b, 2011). Imperatives have the prototypical function of ORDER and they are reduced to a *should-clause* (see Hamblin 1987; Kaufmann 2012: Hypothesis 2.4 *you should-reduction*). There are two distinct levels in the logical form that modal theories adopt, for example:

- (6) a. *Directive Force* which turns the proposition into a directive action which in turn is added to addressee's Plan Set (what the addressee has to fulfill) (Han 1998, 1999, 2001)
- b. *Modal Component* which expresses the irrealis mood and is interpreted with the modal force of a deontic modal (Han 1998, 1999, 2001).

There are two issues with the modal approach. On the one hand, imperatives, as we will see in more detail later in the discussion, are neither universal nor existential quantifiers. Deontic modals, on the contrary, are by default universal (for example, *prepi* 'have to') or existential (for example, *bori* 'may') quantifiers. Imperatives can be interpreted as either universal quantifiers when an order is issued or as existential quantifiers when a request, proffer and prompt are uttered. Analyzing imperatives as ambiguous quantifiers would load the underlying logical form with unnecessary transformations from the default function of ORDER to particulars for each possible interpretation, thus proliferating the semantics of imperatives. On the other hand, the irrealis component does not incorporate the concept of no-commitment, because it just expresses the state of being insubstantial or imaginary; the quality of being unreal. Imperatives and deontic modal verbs, on the contrary, involve the intention to influence, guide and probably carry out an action or a plan according to norms and desires.

3. The Data: Imperatives and Deontic Modality in Greek

Personal *boro* 'may/can' conveys permission, concession or request in Greek, for example:

- (7) a. An thelete **borite** na ton episkefthite
 If want.2pl.INP may SUBJ him visit.2.pl.PNP
 If you want **you can / may** visit him.
- b. **Boro** na episkeftho ton Pavlo?
 Can.1sg.INP SUBJ visit.1pl.PNP the Paul
May / Can I visit Paul?
- c. **Boris** na klisis to parathiro?
 Can.2sg.INP SUBJ close.2sg.PNP the window
Can you close the window?

When in third person singular *bori* 'may/can' it expresses ability, possibility, permission or concession, for example:

- (8) a. O Pavlos **bori** na taksidhepsi avrio
 The Paul **may/can.3sg.INP** SUBJ travel.3sg.PNP tomorrow
 i. It is possible that ... *possibility*
 ii. Pavlos is able to ... *ability*

iii. Pavlos is permitted to ...

permission

Impersonal verb prepi 'must/should' conveys necessity, for example:

- (9) a. Prepi na milisume
Must.3sg.INP to talk.1pl.PNP
We have to / should talk.

The functional heterogeneity of imperatives in Greek but also in other languages (see Schmerling 1982; Kaufmann 2012; among others) is impressive, and varies between a universal (order, obligation, etc.) and an existential quantification (wish, request, advice, etc.). Imperatives in Greek are expressed only in 2nd singular and plural person with the respective imperative verbal suffixes at the end of the verb root, for example:

- (10) a. Katev – a kato amesos! *Order*
Get.2sg.PP down right away
Get down right away!
- b. El – a kata tis pende *permission*
Come.2sg.PP around the five
Come around five.
- c. Par – te ena sokolataki *suggestion/invitation*
Take.2pl.PP one chocolate
Have a bar of chocolate

3.1 No generalized pattern

Greek and English data in this section provide counterarguments to dynamic and modal theories. I will focus on a set of minimal pairs that show where and why imperatives and deontic modality differ.

3.1.1 Assertion or Evaluation of Truth

The propositional status of imperatives and deontic propositions is different. While both kinds of propositions involve truth state, imperatives assert the truth and deontic modal propositions evaluate the truth, for example:

- (11) a. # Eksafanisu apo brosta mu! Ala min to kanis. *Truth Assertion*
Lost-2sg.IMP from in front mine! But not it do.2sg.PNP
Get out of my sight! But don't do it.
- b. # Get out of my sight! But don't do it.

Using an imperative proposition the speaker asserts the truth of a necessity or permission and this is why imperatives disallow commitment inconsistencies on the part of a speaker and become infelicitous in context when they are negated.

On the contrary, when we use a deontic modal expression a speaker assess the degree of the truth of a necessity or permission. Thus, a deontic modal expression can be negated with no contradiction as a result, for example:

- (12) c. Prepi na zitisis sighnomi ala min to kanis! *Truth Evaluation*
 Must-3sg.INP to apologize but not the do-2sg.INP
 You should apologize but don't do it!
- d. You must apologize but don't do it!

3.1.2 Commitment to Realization

When I utter an expression with a deontic modal of the form *prepi na 'I must ϕ '* I am not expressing any commitment to ϕ and I might also very well believe that *dhen prepi na 'I won't ϕ '*. What I convey with any type of deontic modality and imperative as well is a goal, an ideal that is required by some social or personal norm to be achieved. However, acknowledging a norm is completely different from actually submitting to it and actualizing it. Nothing commits me or any participant to its truth. Thus, imperatives and deontic modal verbs are non-veridical. Non-veridicality (see Giannakidou 1998) is the concept indicating that a certain situation or action is not known to commit the speaker and/or the addressee to its realization; more formally: A proposition is non-veridical if and only if it does not entail or presuppose that p is true in some individual's deontic model $M_D(x)$, for example:

- (13) a. Eksafanisu apo brosta mu! ➡ Tha eksafanistis sighura
 Get out of my sight! ➡ You will in fact get out of my sight
- b. Prepi na zitisis sighnomi ➡ Tha zitisis signomi sighura
 You must apologize ➡ You will in fact apologize

3.1.3 Speaker's Ordering Source

The ordering source is one of the parameters in interpreting modality. Ordering source $g(w)$ determines what is an obligation or permission and orders the worlds in the modal base $\cap f(w)$ with respect to the set of propositions that are either obligatory or permissible (Kratzer 1981, 1991). According to Kratzer, the ordering source of modal propositions in general is contextual. This constraint delimits the set of possible permutations within the ordering source. Thus a contextual ordering source yields to a contradiction, see example with deontic modals, when the modal base is ordered in multiple ways. The case of imperatives is different. The ordering source depends on the speaker; meaning that the ordering permutations on the modal base depend on the speaker, and this is why there is no contradiction when using an imperative proposition. Let's see the next example:

- (14) a. Stripse aristera. Stripse deksia. De me endiaferi!
 Take-2sg.IMP a left. Take-2sg.IMP a right. I don't care!
 Take a left. Take a right. I don't care
 Paraphrase: *I'm indifferent* as to where you turn.
- b. # Prepi na pas aristera. Prepi na pas deksia.
 Have to take.2sg.INP a left. Have to take.2sg.INP a right.
- De me endiaferi!
 Not I care!
- #You have to take a left. You have to take a right. I don't care.

- c. # Boris na pas aristera. Boris na pas deksia. De me endiaferi!
May take.**2sg.INP** a left. May take.**2sg.INP** a right.

De me endiaferi!
Not I care!

You may go left. You may go right. I don't care!

3.1.4 Modal Force

Imperatives do not have a predetermined modal force (see Portner; Kaufmann; among others). Those imperatives that convey obligations are universal quantifiers and those that grant permission are existential quantifiers. On the contrary, Greek and English modal verbs likewise lexically encode modal force as either existential quantification in *bori* 'may / can' or universal quantification in *prepi* 'must' over possible worlds:

- (15) a. **Stripste** aristera! ...as a direction \forall or suggestion \exists

Take-**2sg.IMP** a left

Take a left turn!

- b. i. # Borite (\exists) / **Prepi** (\forall) na stripsete aristera

Can-2pl.INP / Must-3sg.INP take a left

You # can / must take a left turn.

...as a direction by your driving instructor when taking the class

- ii. **Borite** / # Prepi na stripsete aristera

Can-2pl.INP / Must-3sg.INP take a left

You can / # must take a left turn.

...as a suggestion by your driving instructor on a trip

Contrary to current theories, I propose that imperatives are underquantified modals. The approach I argue for in this paper is that the modal base of imperatives is underquantified because imperatives do not have a lexically specified modal force¹. To sum up, in this section, I explained why imperatives exhibit a wide range of quantified expressions varying from universal to existential to indifference readings. It is because imperatives incorporate an underquantified modal base and an ordering source the permutations of which are determined by the individual's preferences.

4. Analysis

The analysis of imperatives I propose here is based on two levels. There is a descriptive use level which involves the semantic components that should be taken into account and a performative use level which is about all those pragmatic, contextual factors involved in the interpretation.

¹ In Kratzer's theory, modal base is the intersection of the accessible worlds a modal quantifies over considering that a modal has a lexically specified modal force (universal or existential).

4.1 Underquantification

For the descriptive level I use a modified parameters set. I consider modal base as the set of propositions that form the basis of truth evaluation. Those propositions might be a set of norms, expectations, desires or a set of goals. Modal base is that set of propositions that form the basis of truth evaluation, and modal force is the result of the truth evaluation on the modal base. Thus, there is a direct connection between modal base and modal force; the first parameter determines what the kind of the second parameters will be.

Now, the modal force, universal or existential quantifier, is predetermined for deontic modals. Deontic *prepi* 'have / should to' is a universal quantifier that is to say that a deontically necessary action is true for every possible world. On the other hand *bori* 'may/might' is existential which means that a deontically permissible action is true in at least one possible world. For imperatives, I propose that their modal base is underquantified which means it's not either universal or existential by default, and it is not ambiguous. Imperatives have a non-partitioned quantificational domain. In other words, their modal base is non-partitioned till the moment the speaker crucial decision which I will be explaining soon.

MODAL FORCE:	BORI	→	∃
	PREPI	→	∀
	IMPERATIVES	→	Underquantified ²

To partition a domain of quantification, I employ a speaker's ordering source which selects a subset of the set of propositions, the modal base on which the quantifier will quantify over:

ORDERING SOURCE:	BORI	→	Contextual
	PREPI	→	Contextual
	IMPERATIVES	→	Speaker dependant

Definition 1.1 Quantificational Domain. If the modal base $f_{(w)}$ is the set of all propositions, then a non-partitioned quantificational domain D_Q is the subset of a modal base $f_{(w)}$ selected by the speaker's ordering source $\leq g_{\text{agentive}}$, formally:

$$D_Q = \exists D_Q [D_Q \subseteq (f_{(w)}) \wedge (\leq g_{\text{speaker}}(D_Q)) \wedge Q(f_{(w)}, \leq g_{\text{speaker}})]$$

Where D_Q = Quantificational Domain

Definition in (1.1) represents the non-partitioned quantificational domain D_Q on which $\leq g_{\text{speaker}}$ ordering source maps the preferences of an individual onto the quantificational domain in order to determine the kind of partition; universal or existential. Q is the quantifier placeholder which is not defined in (1.1) yet. Partition will determine the value of the placeholder Q . The quantificational domain is the set of all those things that one might be talking about. In imperatives speaker restricts that domain according to what (s)he want to issue, may that be an order, a wish or a desired goal. Imperatives represent the speaker's subjective commitment to the truth assertion of a proposition uttered. This leads us to the next definition which clarifies how a quantificational domain is restricted.

Definition 1.2 Existential Quantification. If there are at least some deontically possible worlds then the domain of quantification is existentially quantified.

$$\text{If } D_Q < (f_{(w)} \cap \leq g_{\text{speaker}}) \text{ then } D_Q \text{ is existentially quantified}$$

² *Underquantified* means that the modal force is not prespecified and that the modal base is not partitioned

If the speaker according to his/her goals restricts the quantificational domain to some deontically possible worlds then the imperative is translated as a wish or a desire. For example, consider *stripse aristera* ‘Take a left’ when this is aimed as an advice. More formally this is interpreted as: It is true that there is at least one deontically possible world where *stripse aristera* ‘Take a left’ is true. Imperatives in this case do not have the rigidity of an order.

Definition 1.3 Universal Quantification. If the domain of quantification then the domain of quantification overlaps with the set of all deontically possible worlds then it is universally quantified.

If $D_Q = (f_{(w)} \cap \leq g_{\text{speaker}})$ then D_Q is universally quantified

If the speaker according to his/her goals equates the quantificational domain to all deontically possible worlds then the imperative is an order. For example, consider again *stripse aristera* ‘Take a left’ when this is uttered by some sort of authority such as a driving instructor. More formally this would be interpreted as: It is true that *stripse aristera* ‘Take a left’ in all deontically possible worlds is true. Imperatives in this case are considered a norm that should be followed strictly.

4.2 Non-Veridicality

Non-veridicality (see Giannakidou 1998) guarantees a situation or action p does not commit the speaker and/or the addressee to the realization of p . This property of imperatives and deontic modal verbs *prepi* ‘have to’ and *bori* ‘may’ that I illustrated in section 3.2.2 eliminates the need of uttering an imperative and considering it successful when both speaker and addressee are committed to the realization of what was issued (contra Portner 2007; Ninan 2005). Non-veridicality, on the contrary, describes effectively the non-commitment characteristic of imperatives and deontic modal verbs’ alike, for example:

- (16) A propositional operator F is veridical iff Fp entails or presupposes that p is true in some individual’s epistemic model $M_E(x)$; otherwise F is nonveridical.

4.3 Imperative Model of an Individual

The frame of one’s norms, goals and desires in the world, how one views and considers world is provided by his/her class of deontically accessible worlds. This set of standards consist the imperative model of an individual. Formally, we interpret them as all those deontically possible worlds that have to be or should be for all an individual conforms with or aims to. These worlds’ truth is assessed in an imperative model which represents the requirement and preferences’ state of a speaker, formally:

Definition 1.4 Imperative Model of an individual

An imperative model of an individual x , $M_I(x)$, is a set of worlds w' accessible from a world w , compatible with x ’s preferences, requirements, desires, norms and/or goals in w .

- (17) Truth in an Imperative Model

i. A proposition p is true in an imperative model $M_I(x)$ if $M_I(x) \subseteq p$

$$\forall w [w \in M_I(x) \rightarrow w \in \lambda w'.p(w')]$$

The first part involves all those propositions in the individual’s deontic model $M_I(x)$ that should be true in his/ her world according to his/her preferences.

ii. A proposition p is false in an imperative model $M_I(x)$ if $M_I(x) \not\subseteq p$

$$\forall w [w \in M_D(x) \subseteq w \in \lambda w'.p(w')]$$

The second part involves all those propositions in the individual's imperative model $M_i(x)$ that are not true in his/ her world according to his/her preferences. In other words, all those things that are not part of the normative set in his/her world.

4.4 Performativeness

The set of parameters of performative use are described in this section. A deontic modal expression of the form $M\phi$ performs a speech act when two conditions are met: (1) the issuer or a speaker granted the authority to fill in for the issuer addresses in 2nd person the target (addressee) of the proposition $M\phi$ and calls the target of the proposition to take a particular action under a normative concept, and (2) the state of affairs of the form $M\phi$ should not be obtained at the time of issuing $M\phi$, but rather be an unfolding action.

The performativeness of imperatives depends on a slightly different set of presuppositions: (1) the issuer or a speaker granted the authority to fill in for the issuer addresses in 2nd person the target (addressee) of the proposition IMP and calls the target of the proposition to take a particular action, (2) the issuer is consistent with the ordering source g that determines what is an obligation or permission and orders the worlds in the modal base $\cap f(w)$ with respect to the set of propositions that are either obligatory or permissible according to him/her (issuer), and returns the worlds that are at least as close to the ideal determined by the issuer, and (3) the state of affairs of the proposition IMP, are expected to be obtained in a non-past interval.

5. Conclusion

First, I introduced the concept of underquantification in analyzing imperatives so we are able to capture the meaning of an imperative proposition without posing ambiguity. With underquantification we treat modal base as a non-partitioned quantificational domain Q_D on which the speaker has a crucial role. The modal base, the set of propositions related to how things should be will be partitioned according to speaker's preferences and requirements. This is translated formally as the speaker's ordering source. Second, I showed that deontic modality and imperatives are non-veridical propositions; in other words, the participants involved are not committed towards the deontic or imperative proposition. They are not committed to the realization of what they describe. This is, to the best of my knowledge, a novel observation as one of the main characteristics of modality in general. Another contribution of this paper is that, the semantic components of modal interpretation and imperatives can be affected by pragmatic factors. More specifically, I showed that, imperatives are a speaker-oriented and direct performative expression, while deontic modal expressions are context-oriented, direct or indirect and by speaker's choice performative.

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