

Imperatives are existential modals; Deriving the *must*-reading as an Implicature

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The dual character of Imperatives with respect to their quantificational force has been a long-lasting puzzle in the literature (Han 2000, Schwager 2006 / Kaufmann 2012, Portner 2007, Condoravdi & Lauer 2012, von Stechow & Iatridou 2015). The sentence in (1) gets a *can*-reading in a context where the Addressee wants to open the window (*permission*) and a *must*-reading in an *out-of-the-blue* context where a Professor asks a student to open the window (*command*):

(1) Open the window.

In this talk I argue that Imperatives involve an existential modal. The universal reading is explained on the basis of two factors; i) lack of a scalar counterpart as opposed to overt modals (cf. Deal 2011) ii) strengthening via an Implicature derived in the presence of certain Focus Alternatives (cf. Schwager 2005). First, I present an analysis of Imperatives as existential modals; Evidence for such an analysis comes from scopal ambiguities with *only*. Then, I provide an analysis for the emergence of the *must*-reading.

Introduction The dual character of Imperatives with respect to their quantificational force has been a long-lasting puzzle in the literature (Han 2000, Schwager 2006 / Kaufmann 2012, Portner 2007, Condoravdi & Lauer 2012, von Stechow & Iatridou 2015). The sentence in (1) gets a *can*-reading in a context where the Addressee wants to open the window (*permission*) and a *must*-reading in an *out-of-the-blue* context where a Professor asks a student to open the window (*command*):

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In this talk I argue that Imperatives involve an existential modal. The universal reading is explained on the basis of two factors; i) lack of a scalar counterpart as opposed to overt modals ii) strengthening via an Implicature derived in the presence of certain Focus Alternatives (cf. Schwager 2005). First, I present an analysis of Imperatives as existential modals; Evidence for such an analysis comes from scopal ambiguities with *only*. Then, I provide an analysis for the emergence of the *must*-reading. Finally, I draw a parallel with other covert modals which also seem to be ambiguous between an existential and a universal reading and I suggest that the present analysis can be extended in these environments as well.

Imperatives as Existential modals

In line with Han (2000), Schwager (2012), Condoravdi & Lauer (2012) and differently from Portner (2007) I assume that Imperatives involve a covert modal operator (*Imp*). However, I deviate from these analyses in treating *Imp* as an existential modal (see Schwager 2005) whose meaning can be formalized as in (2) following a Kratzerian analysis of modals as outlined in von Stechow & Heim (2011).

(2) $[[Imp]]^{w,g} = \lambda R \in D_{\langle S, st \rangle}. \lambda q \in D_{\langle st \rangle}. \exists w' \in W [R_{imp}(w)(w') = 1 \ \& \ q(w') = 1]$, where w is the actual world and g is an assignment supplied by the context such that $g(R_{imp}) = \lambda w. \lambda w'$. the S 's wishes/desires/moral beliefs in w with respect to the \mathcal{A} 's actions are satisfied in w' .

The modal base is given by the context and it represents the set of the worlds which are compatible with the wishes/desires/moral beliefs of the Speaker S in the actual world w regarding the actions of the Addressee \mathcal{A} in a possible world w' . The performative character of Imperatives can be explained assuming that *Imp* has certain felicity conditions/presuppositions which force performativity (pace Kaufmann 2012, Condoravdi & Lauer 2012). Based on (2), we derive the meaning in (3) for the sentence in (1) that *there is a world compatible with the S 's desires in which \mathcal{A} opens the window*, which captures our intuition about the *can*-reading of the Imperative:

(3) $[[Imp \ \mathcal{A} \ open \ the \ window]]^{w,g} =$
 $= \exists w' \in W. \text{the } S\text{'s desires in } w \text{ are satisfied in } w' \ \wedge \ \text{the } \mathcal{A} \text{ opens the window in } w'$

Before considering the derivation of the *must*-reading, I present data from Greek suggesting that the *Imp* operator is existential.

Evidence for the existential character of *Imp* Haida & Repp (2011) observe that an Imperative containing *only* (4) is ambiguous; in context A, we get the reading that \mathcal{A} should paint the round table but he is allowed to not paint the other tables whereas in context B, \mathcal{A} is allowed to paint the round table but he is not allowed to paint the other tables:

Context A: *You've asked me to paint those tables but I'm really tired and don't feel like doing something really useful today.* Context B: *Oh, I feel like doing something really useful today. I think I'll paint the tables over there.*

(4) Only paint the round table.

Building on H&R's example I show that the ambiguity of (4) is in fact scopal (footnote (1) in H&R 2011) and can be explained only if we treat *Imp* as an existential modal; in context A *only* is interpreted below *Imp* whereas in Context B above *Imp*. The scopal nature of the ambiguity becomes clear in Greek where there is overt focus movement which has been shown to resolve scope ambiguities in general. In (5a) the *only*-DP remains in situ and both readings are available. On the contrary, in (5b) where the *only*-DP undergoes focus movement only the reading that *A is not allowed to paint the other tables* survives:

- (5) a. Vapse [mono to strogilo trapezi].
 Paint only the round table. $\rightsquigarrow \diamond > \textit{only} / \textit{only} > \diamond$
 b. [mono to strogilo trapezi] vapse.
 Only the round table paint $\rightsquigarrow * \diamond > \textit{only} / \textit{only} > \diamond$

Only takes as its argument p ; it presupposes that p and negates all non-weaker alternatives of p (Horn (1969). Following Rooth (1992), the alternatives of p are computed by substituting the focused constituent *ROUND* with the relevant alternatives (i.e. *SQUARE/TRIANGLE*):

(6) Focus value of (4/5):

$$\llbracket (5) \rrbracket_f^{w,g} = \left\{ \begin{array}{l} \exists w' \in W. \mathcal{S}'\text{'s desires in } w \text{ are satisfied in } w' \wedge \mathcal{A} \text{ paints the RND table in } w' \\ \exists w' \in W. \mathcal{S}'\text{'s desires in } w \text{ are satisfied in } w' \wedge \mathcal{A} \text{ paints the } \frac{\text{SQR}}{\text{TRG}} \text{ table in } w' \end{array} \right\}$$

Therefore when *only* takes scope below the existential modal (Context A) we get the meaning in (7a). When *only* takes scope above the existential modal (Context B) we get (7b):

- (7) a. $\exists w' \in W. \text{ the } \mathcal{S}'\text{'s desires in } w \text{ are satisfied in } w' \wedge \neg[\mathcal{A} \text{ paints the SQR/TRG table in } w']$.
 b. $\neg \exists w' \in W. \text{ the } \mathcal{S}'\text{'s desires in } w \text{ are satisfied in } w' \wedge \mathcal{A} \text{ paints the SQR/TRG table in } w'$.

In (5b) the *only*-DP cannot reconstruct after overt focus movement, therefore the meaning in (7a) becomes inaccessible. Crucially, treating *Imp* as a universal modal (Kaufmann 2012) derives the wrong reading for (5b); the interpretation we would get is that \mathcal{A} is **not required** to paint the other tables whereas the intended interpretation would be that \mathcal{A} is **required not** to paint the other tables. In Portner's (2007) analysis of Imperatives in which there is no modal operator in semantics we should make some additional assumption regarding the scope of *only* (i.e. scoping over or below speech acts). Here I focus on showing that under an existential analysis of imperatives the *must*-reading can be derived by mechanisms that are independently motivated.

Deriving the *must*-reading I argue that the *must*-reading is possible because there is no stronger scalar counterpart to *Imp*. An overt existential modal like *can* has a stronger scalar counterpart *must*. Following Magri (2011), I take the scalar Implicature in (8) to be *blind* to the context and therefore obligatory:

(8) You can open the window.

\rightsquigarrow *It's not the case that you must open the window.*

On the contrary, I argue that there is no counterpart to the covert existential operator in Imperatives and therefore no *scalar* implicature is derived. This allows *Imp* to be interpreted as universal (similarly to what is argued in Deal 2011 for the modal suffix in Nez Perce). Now the question is what forces a universal interpretation of *Imp* in the command-reading. Building on Kaufmann's idea of Imperatives as Exhaustive Possibilities in Schwager (2005), I suggest that the *must*-reading is the result of an implicature derived when the complement p of *Imp* is broadly focused. Following Rooth (1992) the alternatives of p can be any proposition of type $\langle st \rangle$. When an Imperative is uttered in an *out-of-the-blue* context I take the only contextually salient proposition to be $\neg p$, thus deriving the alternatives in (9) for the sentence in (1):

(9) $\llbracket (1) \rrbracket_f^{w,g} = \left\{ \begin{array}{l} \exists w' \in W. \mathcal{S}'s \text{ desires in } w \text{ are satisfied in } w' \wedge \mathcal{A} \text{ opens the window in } w'. \\ \exists w' \in W. \mathcal{S}'s \text{ desires in } w \text{ are satisfied in } w' \wedge \neg[\mathcal{A} \text{ opens the window in } w'] \end{array} \right\}$

The Focus Alternatives are then evaluated by an EXH operator (10) (Chierchia, Fox & Spector 2012) and all non-weaker alternatives are negated, thus deriving the Implicature in (11):

(10) $\llbracket EXH_{ALT}(S) \rrbracket^w = 1$ iff $\llbracket S \rrbracket^w = 1$ and $\forall \varphi \in ALT(\varphi(w) = 1 \rightarrow (\llbracket S \rrbracket \subseteq \varphi))$

(11) $\neg \exists w' \in W. \text{ the } \mathcal{S}'s \text{ desires in } w \text{ are satisfied in } w' \ \& \ \neg[\text{the } \mathcal{A} \text{ opens the window in } w']$

By exhaustifying the alternatives we get the interpretation that there is no world that is compatible with $\mathcal{S}'s$ desires in which \mathcal{A} does not open the window. This is equivalent to saying that the \mathcal{A} *must open the window*, thus capturing our intuition about the *must*-reading of (1) in the professor context. Under this analysis it is expected that an Imperative which occurs in an *out-of-the-blue* context is interpreted as a command; the relevant alternatives to $[Imp_{\diamond} p]$ will be of the form $[Imp_{\diamond} \neg p]$, therefore deriving the implicature that $\neg[Imp_{\diamond} \neg p]$. Moreover, we expect when that under a marked prosodic pattern, we will get a non-command/request reading. Indeed preliminary results from a prosodic study of Imperatives shows that permissions are realized with focus on the verb followed by deaccenting whereas narrow-focus imperatives pattern both with commands and permissions depending on the context.

Beyond Imperatives The ambiguity between a universal and an existential interpretation is also present in other environments of covert modality (i.e. matrix subjunctives, *wh*-infinitival questions - Bhatt 2002, dispositional middles - Condoravdi 1989, Lekakou 2002). I suggest that these covert modals can be analyzed as existential and that the universal reading can be accounted for in a similar way as in Imperatives, providing a way to unify different patterns of covert modality as being existential. The question which arises is whether there is an explanation

for the existential character of Imperatives and other covert modals. I suggest to explore the idea that covert modals simply lack quantificational force and that existential force comes via Existential Closure.

Selected References

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