

## On root modality and thematic relations in Tagalog and English

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The many varieties or “flavors” of modality have been argued to require a contextual account (Kratzer 1981, 1991, a.o.). More recently, however, Cinque 1999 and Hacquard 2010 have shown that broad categories of modal flavors correspond to different syntactic structures and have different grammatical properties. These works have focused on modal auxiliaries and other functional modal expressions; the grammatical properties of lexical modals, i.e. thematic verbs, are less understood. In this paper, we use Tagalog *kailangan* and English *need* as a case study in the syntax-semantics of lexical modals. *Kailangan* and *need* enter two structures, which we call “impersonal” and “thematic.” We show that syntax constrains the verbs’ modal potential, a puzzle for contextual accounts. The impersonal structure only expresses deontic necessity (necessity according to 3rd-party rules or laws), while the thematic structure only expresses subject-teleological necessity (necessity given a particular goal of the subject’s). We propose that *kailangan* and *need* are always thematic; deontic modality arises when their “needer” is an implicit free variable argument whose reference is constrained by binding principles, resulting in constraints on modal flavor. Our analysis leads to a tentative but more articulated typology of lexical necessity modals, dividing them according to whether they accept implicit arguments.

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**Introduction:** It's a robust generalization that a single modal verb can be associated with a range of modal “flavors” (Kr81,91). Kratzer's original proposal was that conversational backgrounds derive distinctions in flavor, but recent work suggests that some distinctions are in the grammar e.g. a product of syntax (cf. Ci99; Ha10 for epistemic vs. root modals). Here, we examine the interpretations associated with English *need* and Tagalog *kailangan*, a necessity modal verb that enters two different structures, which we identify as “impersonal” (1) and “thematic” (2).

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| <p>(1) <b>Impersonal</b><br/>         [kailanga[-ŋ ma-tulog si Juan]]<br/>         MOD-COMP AV-sleep ABS Juan<br/>         Approx. “Juan is required to sleep”</p> | <p>(2) <b>Thematic</b><br/>         [kailangan ni Jua[-ŋ ma-tulog]]<br/>         MOD ERG Juan-COMP AV-sleep<br/>         Approx. “Juan feels a need to sleep”</p> |
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We show that the modal and *Juan* stand in a thematic relationship in (2) but not in (1), a contrast which affects modal flavor; the impersonal construction can only express necessity given 3rd-party priorities (which we call “deontic”), while the thematic structure can only express necessity given the subject’s priorities (which we call “teleological”). This challenges analyses attributing the distinction between deontic and teleological modality to context. We then show that English *need* displays the same syntax–flavor mapping. It realizes a thematic structure and expresses teleological necessity when followed by a CP; it can also realize a raising structure and express deontic necessity when followed by an IP. To account for the observed syntax–flavor mapping, we propose a single lexical entry for *kailangan* and *need*; these modals always select a thematic “needer” argument, from which their domain of quantification is extracted. In thematic constructions, the subject is the needer, and in impersonal constructions, an implicit free variable is. We show how differences in modal flavor can be made to follow.

**Tagalog syntax:** Case marking in (1-2) reveals a difference in syntactic structure. Tagalog clauses are verb-initial, and a verb's voice affix (glossed AV for “Actor Voice,” TV for “Theme Voice” etc.) causes the verb's thematic arguments to be case marked in a particular way. The ABS marking on “Juan” in (1) shows that it is an argument of the embedded verb, which, with its AV-inflection, realizes an ABS-marked sleeper. In contrast, the ERG-marking on “Juan” in (2) must be from *kailangan*, which realizes an ERG-marked needer (see Sch&Ot72, Asa&Ho05).

**Flavor of *kailangan*:** Structure determines the flavor of necessity expressed. The context for (3-4) verifies a deontic necessity claim and, with plausible assumptions, falsifies a teleological one. Presented with the minimal pair, speakers accept impersonal (3) and reject thematic (4).

*Context: Juan is hungry. His mother gave him a plate of food, but she told him to set some food aside for his brother, who is hungry too. Juan intends to keep eating and to finish the plate.*

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| <p>(3) <b>Impersonal:</b></p> | <p>[kailanga[-ŋ mag-tira si Juan ng pagkain]]<br/>         MOD-COMP AV-set.aside ABS Juan OBJ food<br/>         “Juan is required to set aside food”</p>   |
| <p>(4) <b>Thematic:</b></p>   | <p>#[kailangan ni Jua[-ŋ mag-tira ng pagkain]]<br/>         MOD ERG Juan-COMP AV-set.aside OBJ food<br/>         “Juan feels a need to set aside food”</p> |

Conversely, the context for (5-6) verifies a teleological necessity claim and, with plausible assumptions, falsifies a deontic one. Speakers accept (6) but reject (5).

Context: Juan has smoked since he was young, and now he's sick. Doctors have ordered him to quit, but he can't resist. He hasn't smoked for weeks, but today he decided that he'll buy a pack.

(5) **Impersonal**

#[kailanga-[ $\eta$  ma-nigarilyo si Juan]]  
 MOD-COMP AV-smoke ABS Juan  
 #“Juan is required to smoke”

(6) **Thematic**

[kailangan ni Jua-[ $\eta$  ma-nigarilyo]]  
 MOD ERG Juan-COMP AV-smoke  
 “Juan feels a need to smoke”

**Flavor of need:** Like *kailangan*, English *need* enters a thematic and an impersonal construction, which correlate with different modal flavors. *Need*+CP constructions enforce a thematic relation between *need* and its subject; here, only subject-teleological flavor is available. For example, speakers reject the *need*+CP construction in (8) when the subject's antipathy towards the proposition denoted by *need*'s complement is salient (Rub2012:155).

Context: city regulations mandate that homeowners put up fences between their properties. You and your neighbor get along well without a fence, and you both object because a fence would destroy the flowerbeds flourishing between your properties. You say to your neighbor:

(7) We need [<sub>IP</sub> to put up a fence here] (8) #We need [<sub>CP</sub> for there to be a fence here]

Thematic constructions are not compatible with inanimate subjects, as shown in (10); hence, the well-formedness of (9), along with the availability of expletive subjects (e.g. *there needs to be...*), shows that *need* can realize an impersonal, raising structure.

(9) The stew needs [<sub>IP</sub> to be tasted by the chef] (10) #The stew needs [<sub>CP</sub> for the chef to taste it]

Using inanimacy as a diagnostic for raising, we observe that only deontic flavor is available in impersonal *need*-statements. For example, (11) sounds odd because it can't express necessity in light of priorities belonging exclusively to John.

Context: John obsesses about the cleanliness of the bathroom. Although the bathroom is clean...

(11) #The bathroom needs [<sub>IP</sub> to be cleaned by John] (12) John needs [<sub>IP</sub> to clean the bathroom]

**Proposal:** *Kailangan* and *need* reveal a clear correlation between thematic relations and modal flavor. We posit one lexical entry for both that is sensitive to the thematic relations established by the verb. We propose that *need* always selects a needer argument and expresses necessity in view of a presupposed desire of the needer. Impersonal constructions come to express deontic necessity because the needer is an implicit free variable, referring to an individual/institution whose desire forms the basis of the apparent deontic claim.

In our model, the interpretation function is relativized to a context  $C$ , which is a tuple consisting of at least a modal base function  $f_{\langle s, \langle st, t \rangle \rangle}$ , an ordering source function  $g_{\langle s, \langle st, t \rangle \rangle}$ , and an assignment function  $G_{\langle n, \tau, \tau \rangle}$ . We treat *need* as having two definedness conditions: (i) the ordering source must return a set containing a desire of *need*'s thematic argument and (ii) the prejacent proposition must not be settled in the modal base (like with *want*, e.g. Heim92).

(13)  $[[need/kailangan]]^C(p_{\langle s, t \rangle})(x_e)(w_s)$  is defined only if  $\exists q_{s,t} \in DES(x, w)$  and  $g(w) = \{q\}$  and  $\cap f(w) \cap p \neq \emptyset$  and  $\cap f(w) \cap \neg p \neq \emptyset$

if defined,  $[[need/kailangan]]^C(p)(x)(w) = 1$  iff  $\forall w' \in \max_{g(w)}(\cap f(w))$ .  $p(w')=1$

For any set of worlds  $W$ , set of propositions  $A$ , possible worlds  $w, w'$ , and individual  $x$ :

$\max_A(W) = \{w \in W : \neg \exists w' \in W. w' <_A w\}$

$w' <_A w$  iff  $\{p : p \in A \text{ and } w \in p\} \subset \{p : p \in A \text{ and } w' \in p\}$

$DES(x, w) = \{p_{\langle s, t \rangle} : p \text{ is desirable to } x \text{ in } w\}$  (vFin99)

The Tagalog impersonal construction in (3) has the LF in (14a); suppose the assignment function maps  $\text{pro}_{7,e}$  to Juan's mother. (14a) expresses that it is a necessity that Juan set aside food, given a

presupposed desire of his mother (e.g. that both her children eat). In contrast, the thematic construction in (4) above has the LF in (14b). It expresses that it is a necessity that Juan set aside food, given one of his own desires (abstracting away from the control relation between *Juan* and embedded PRO and anglicizing matrix clause word order). The provided context excludes the possibility of Juan having a desire that is realized by setting aside food.

- (14a) [pro<sub>7,e</sub> [kailanga-[η mag-tira si Juan ng pagkain]]]  
 [pro [MOD-[COMP AV-set.aside ABS Juan OBJ food]]]  
 (14b) #[ni Juan [kailanga-[η mag-tira PRO ng pagkain]]]  
 [ERG Juan [MOD-[COMP AV-set.aside ABS PRO OBJ food]]]

The impersonal construction in (3) has the same truth conditions as an alternative thematic structure, (15); here, Juan's mother is *kailangan*'s needer overtly (*ng* = ERG on common nouns).

- (15) [kailangan ng nanay ni Jua-[η mag-tira si Juan ng pagkain]]  
 MOD ERG mother GEN Juan-COMP AV-set.aside ABS Juan OBJ food  
 "Juan's mother needs Juan to set aside food"

**Restriction on impersonal constructions:** Impersonal constructions cannot express necessities given a desire of the embedded subject (see (5) and (11) above). To account for this, we invoke binding Conditions C and B. Co-indexing an implicit c-commanding pronoun with a proper name or (in)definite in the embedded subject position induces a Condition C effect. Embedded *pronominal* subjects cannot be coindexed with the implicit needer either, due to Condition B; using Tagalog clitic climbing and temporal modification, we show that the clausal complement in the impersonal constructions is a restructuring clause and places the embedded subject in the same binding domain as the needer.

**Need vs. necessary:** On our account, *need* presupposes that there is a salient desire of the subject's in the context. This resembles Rubinstein's (2012:ch3) analysis of goal-oriented modals like *necessary*. *Necessary* reveals its goal-orientedness by contrasting with *have-to* in (16).

(16) If these two lines aren't parallel, [ they have to / ?it's necessary for them to ] intersect. Rubinstein shows that *necessary*, when complemented by a *for-to* infinitive, implies that a particular goal is achieved when the embedded proposition is true, unlike *have-to*. (17) is our simplified rendition of *necessary*; we add to our context *C* a "collective priority slate,"  $PS_{\langle\langle s, t \rangle, t \rangle}$ , to model presupposed priorities that are not associated with any particular individual.

- (17)  $[[necessary]]^C(p_{\langle\langle s, t \rangle, t \rangle})(w_s)$  is defined only if  $\exists q_{\langle\langle s, t \rangle, t \rangle} \in PS$  and  $g(w) = \{q\}$  and  $\cap f(w) \cap q \neq \emptyset$  and  $\cap f(w) \cap \neg q \neq \emptyset$ . If defined,  $[[necessary]]^C(p)(w) = 1$  iff  $\forall w' \in \max_{g(w)}(\cap f(w))$ .  $p(w')=1$   
 $PS_{\langle\langle s, t \rangle, t \rangle} = \{p_{\langle\langle s, t \rangle, t \rangle} \mid \text{all interlocutors in } C \text{ publicly endorse } p \text{ as desirable}\}$

**Need vs. want:** Our semantics for *kailangan/need* does not license inferences from teleological *need* to *want*; we take this as desirable, given the possible consistency of sequences like (18).

(18) Spot needs me to give him a bath, but he doesn't want me to give him a bath. We take (18) to mean that in all worlds where some presupposed desire of Spot's is realized (e.g. that he not have fleas), I give him a bath, despite the fact that in the worlds that maximally accord with *all* of Spot's desires (including that he not get wet), I don't give him a bath.

**Conclusion:** In this paper, we discuss one strategy made available by grammars to achieve modal flavor expressiveness; it depends crucially on a verb's syntactic versatility, as shown by *kailangan*. The fact that *need* conforms to the generalization, despite string-identity of thematic and impersonal constructions in English, reinforces our point about the existence of this strategy.

## References

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