

JAVANESE MODALS*

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Javanese modals reveal interesting behaviour with respect to morphology and, more significantly, with respect to how the modal space is represented. The goals of this paper will be to first show that modals in Javanese are a distinct grammatical category, and secondly, to demonstrate that Javanese modals lexically encode both quantificational force and the type of modal base.

Section 1 describes how, on the syntactic level, modals in Javanese behave more like auxiliaries than verbs, but depart from this similarity with the addition of the affixes *sa'*- and *-(n)é*. I argue that, in this case, a morphological distinction between auxiliaries and modals warrants a separate grammatical category for modals. In §2 and §3, I turn to the second goal: how modality is represented in Javanese. Javanese modals are shown to have specified force as well as a selective modal base. Section 2 compares the fundamental organization of modality in Javanese to languages like English and St'át'imcets (Lilloet Salish). Section 3 then provides evidence how Javanese modality is unique, and looks at the modals *mesthi* 'inevitable', *mungkin* 'may', *kudu* 'must' and *ento*, *oleh* 'permit' separately. These differences are illustrated with data from Pesisiran Javanese (Western Malayo-Polynesian, Austronesian) of the *ngoko* speech level, spoken in Indonesia.

1. The Grammatical Status of Javanese Modals

As a first step, I show that modals in Javanese are a distinct grammatical category. In particular, this section illustrates that modals in Javanese are unlike verbs and closer to auxiliaries. For example, neither auxiliaries nor modals can take a DP argument (§1.1) or passivize (§1.2). However, while these modals are syntactically similar in nature to auxiliaries, they show unique behaviour with respect to morphological effects; namely the addition of the prefix *sa'*- and the suffix *-(n)é* (§1.4). The focus in §1 is on the modals *mesthi* 'inevitable' and *kudu* 'must'. Please note that I have used *wis* 'PAST'¹ and either *mesthi*

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¹ The auxiliary *wis* 'PAST' may in fact be a perfective marker. Further research is necessary to fine tune this analysis.

‘inevitable’ or *kudu* ‘must’ as representative of the class of auxiliaries and modals respectively for the examples in §1.

1.1 Neither Auxiliaries nor Modals can take DP Arguments²

Examples (1) and (2) demonstrate that modals and auxiliaries never license DP arguments, whereas verbs generally do (as shown in (2)b). The auxiliary *wis* ‘PAST’ can take a VP complement, as in (1)a, but not a DP complement, (1)b.

- (1) a. cah kuwi **wis** [_{VP} mangan]
 child the PAST eat
 ‘The child has eaten.’
- b. *konco-ku **wis** [_{DP} gelang]
 friend-my PAST bracelet
 (‘My friend had a bracelet.’)

Similarly, a modal cannot have a DP argument as its complement, as shown by the ungrammaticality of (2)b for the modal *mesthi* ‘inevitable’.

- (2) a. Dullah **mesthi** [_{VP} ngerti [_{DP} jawaban-é]]
 Dullah inevitable know answer-POSS
 ‘Dullah must know the answer.’
- b. *Dullah **mesthi** [_{DP} jawaban-é]
 Dullah inevitable answer-POSS
 (‘Dullah certainly has the answer’)

1.2 Neither Auxiliaries nor Modals can take Passive Morphology

With respect to passivization, auxiliaries and modals are noted to behave similarly, in contrast to verbs. Comparing the active sentence in (3) to its passive counterpart, we note that the passive prefix *di-* attaches to the verb *masak* ‘cook’, (4)a, but not to the auxiliary *wis* ‘PAST’, (4)b. Furthermore, the auxiliary plus verb is not seen as a complex predicate where *di-* attaches to both elements, illustrated by the ungrammaticality of (4)c.

- (3) Aku **wis** masak sego
 1SG PAST cook rice
 ‘I have cooked the rice’
- (4) a. Segu kuwi **wis di-**masak karo aku
 rice the PAST PASS-cook by me
 ‘The rice has been cooked by me.’

² All examples are from fieldwork, unless otherwise noted.

- b. *Sego kuwi **di-wis** masak karo aku
 rice the PASS-PAST cook by me
- c. *Sego kuwi **di-wis di-masak** karo aku
 rice the PASS-PAST PASS-cook by me

Modals exhibit parallel behaviour, as shown in (5) and (6): the passive prefix *di-* may only attach to the verb, and not to the modal or both elements.

- (5) Aku **mesthi** masak sego
 1SG inevitable cook rice
 ‘I must cook the rice’
- (6) a. Segu kuwi **mesthi di-masak** karo aku
 rice the inevitable PASS-cook by me
 ‘The rice must be cooked by me.’
- b. *Segu kuwi **di-mesthi** masak karo aku
 rice the PASS-inevitable cook by me
- c. *Segu kuwi **di-mesthi di-masak** karo aku
 rice the PASS-inevitable PASS-cook by me

1.3 Both Auxiliaries and Modals can appear with Predicates

This subsection makes evident that both auxiliaries (7)-(9) and modals (10)-(12) can appear with predicates of type VP, PP, or AP, exemplifying again that auxiliaries and modals behave similarly.

- (7) aku **wis** [_{VP} mangan]
 I PAST eat
 ‘I ate.’
- (8) kitu **wis** [_{PP} nang warong kuwi]
 we PAST to store the
 ‘I have been to the store.’
- (9) aku **wis** [_{AP} warèk]
 I PAST full
 ‘I’m already full.’
- (10) Dullah **kudu** [_{VP} ngomong boso Inggris]
 Dullah must speak language English
 ‘Dullah must speak English.’

- (11) Aku **kudu** [_{PP} nang warong kuwi]
 I must to store the
 ‘I must go to the store.’
- (12) Amina **kudu** [_{AP} siap] jam pitu
 Amina must ready later seven
 ‘Amina should be ready at 7pm.’

1.4 Interaction with *sa’-...-(n)é*

This section first shows that, again, modals and auxiliaries are unlike verbs: the prefix *sa’-* and the possessive suffix *-(n)é* may attach to both modals and auxiliaries, but not to verbs. Secondly, this section shows that modals and auxiliaries are different: that is, different categorial effects arise depending on the class of the stem these morphemes attach to.

1.4.1 Auxiliaries

Example (13)b demonstrates that the addition of the affixes *sa’-* and *-(n)é* derive prepositions when attached to auxiliaries. In such cases, *sa’-* and *-(n)é* are both obligatory; these prepositions create adjuncts, which modify the main clause.

- (13) a. Amina **wis** adus.
 Amina PAST bathe
 ‘Amina had already taken a bath.’
- b. **Sa’-wis-é** adus, Amina turu.
 SA-PAST-POSS bathe, Amina sleep
 ‘**After** taking a bath, Amina slept.’

Other auxiliaries, including *mari* ‘PAST’, as shown in (14), and *durung* ‘not yet’, as in (15), display this behaviour as well.

- (14) **Sa’-mari-né** panén, wong wong dheso kuwi nanggap wayang
 SA-PAST-POSS harvest, person person village the ask shadow.play
 ‘**After** the harvest, the villagers ask for a shadow puppet show.’
- (15) Amina turu **sa’-durung-é** adus.
 Amina sleep SA-not.yet-POSS bathe
 ‘Amina slept **before** taking a bath.’

1.4.2 Modals

For modals, $-(n)é$ shifts the meaning³ and derives adverbs. The prefix *sa'*- is optional for the epistemic modal *mesthi*, as in (16), and not permitted for the deontic modal *kudu* (17). Here, I focus only on the categorial-changing effects.

- (16) Context: The photos are developed from the wedding, but the results are not so good. Even though the photographer was excellent, the lighting perfect, the weather great, unfortunately the picture did not turn out well.

- a. gambar-é (sa')-mesthi-né indah.
 picture-POSS SA-inevitable-POSS beautiful
 'The picture should have been beautiful'

These modals normally have a fixed position relative to other auxiliaries, but when they appear with $-(n)é$, they may also occur sentence initially (as in (17)a), after the verb (provided there is a pause) (as in (17)b), or, as usual, after the subject (as in (17)c). Examples (17)a and (17)b show that their syntactic position changes to be more free with this affix.

- (17) Context: The consultant is describing with regret the situation of teachers today; unfortunately they are not great role models for students nowadays.

- a. **Kudu-né** guru kuwi dadi panutan
 must-POSS teacher the become role.model
- b. Guru kuwi dadi, **kudu-né**, panutan
 teacher the become, must-POSS, role.model
- c. Guru kuwi **kudu-né** dadi panutan
 teacher the must-POSS become role.model
 'The teacher should be a role model.'

Further evidence that *mesthiné* and *kuduné* are adverbial-like is shown by the parallel distribution with speaker-oriented adverbs such as *sa'jatiné* 'actually', *sa'temené* 'really' and *sa'beneré* 'in fact'.

- (18) a. **sa'-jati-né**, cah kuwi pinter tapi polahé ora sinau, cah kuwi
 SA-teak-POSS, child the smart but because not study, child the
 ora lulus.
 not succeed

³ The possessive suffix $-(n)é$ changes the meaning of modal: descriptively, instead of relating the speaker's degree of confidence about the proposition in question, $-(n)é$ appears to relate the speaker's regret about the proposition. In other terms, $-(n)é$ seems to shift the modal to a counterfactual, a topic worthy of future research.

- b. cah kuwi **sa'jatiné** pinter tapi polahé ora sinau, cah kuwi
 child the actually smart but because not study, child the
 ora lulus.
 not succeed
 'Actually, the child is smart but because he didn't study, the child
 didn't pass.'

These morphological effects show that *mesthi* 'inevitable' and *kudu* 'must' in Javanese are distinct from auxiliaries and should therefore be analyzed as a separate grammatical category.

In sum, the data presented in §2 has shown that modals are similar to auxiliaries, but unlike verbs on the syntactic plane in that they cannot take DP arguments, they cannot passivize, and they can both appear with VP, PP, and AP predicates. However, modals are unique on the morphological plane in that the possessive suffix *-(n)é* derives prepositions when attached to auxiliaries, but derives adverbs when attached to modals. Thus, while auxiliaries and modals may not be syntactically distinguishable aside from their distinct fixed positions, their semantics are quite different: auxiliaries relay information about tense or aspect, while modals relay the speaker's degree of confidence about the proposition. It is interesting that these two elements choose to differentiate only with the interaction of morphology, suggesting that modals should not be analyzed in the same class as auxiliaries. Instead, I argue that a separate grammatical category is necessary for modals in Javanese. Furthermore, this data highlights the fact that all aspects of the grammar, including morphology, must be considered in determining grammatical status. I now turn to the second goal of this paper, beginning with a brief comparison of modal systems.

2. Comparing Different Modal Systems

This section argues that modals in Javanese are distinctive from their counterparts in both English and St'át'imcets (Lilloet Salish) in that they lexically encode both quantificational force and the type of modal base.

Languages can vary on two different axes as shown by English and St'át'imcets. English modals, on one hand, have a fixed quantificational force, acting as either universal (i.e. *must*) or existential (i.e. *may*) quantifiers over possible worlds, but the type of the modal base (epistemic, deontic, circumstantial, etc.) may vary depending on the conversational background, as noted in Kratzer's seminal work on modality (Kratzer 1977, 1981, 1991). Example (19) serves to illustrate this point: in English, the same lexical item, *must*, may be employed for both epistemic contexts and deontic contexts.

- (19) a. John **must** be at home
 (in view of what I know – i.e. the lights are on) EPISTEMIC

- b. John **must** go to school
(in view of the law in Canada) DEONTIC

Lilloet Salish, on the other hand, lexically specifies the type of modal base, distinguishing between deontic, circumstantial and several kinds of epistemic modality, but appears to allow variable quantificational force (Rullmann et al, to appear; Matthewson et al 2005, In press). Thus, as shown in Table 1, the modal system in English may be described as having specified force, but an unselective modal base. Lilloet Salish is the opposite, with unspecified force and a selective modal base.⁴

Table 1. Modal distinctions

	<i>selective modal base</i>	<i>unselective modal base</i>
<i>specified force</i>	Javanese	English
<i>unspecified force</i>	St'át'imcets	?

Javanese is different from both English and Lilloet Salish in that it has a specific lexical word for each combination of force and modal base.

To view this comparison in a different light, let us consider the fundamental organization of modality: while Tables 2 and 3 simplify matters somewhat, the English modal system can be seen along a horizontal axis, while the modal system for Lilloet Salish is organized along a vertical axis.

Table 2. The modal system of English (Matthewson et al 2006:12)

	deontic	epistemic	circumstantial	future
universal	<i>must</i>	<i>must</i>	<i>must</i>	<i>will</i>
existential	<i>can</i>	<i>can</i>	<i>can</i>	<i>might</i>

Table 3. The modal system of St'át'imcets (Matthewson et al 2006:12)

	deontic/irrealis	epistemic	circumstantial	future
universal	<i>ka</i>	<i>k'a</i>	<i>ka-...-a</i>	<i>kelh</i>
existential	<i>ka</i>	<i>k'a</i>	<i>ka-...-a</i>	<i>kelh</i>

That is, whereas English modals have a fixed quantificational force, but may typically take varying types of modal bases (Table 2), modals in Lilloet Salish have a fixed modal base, but typically vary in quantificational force (Table 3).

On the basis of these opposing modal systems, Rullmann et al (to appear) speculate that there is an inverse correlation: that is, all languages must specify exclusively for either force or modal base. If such a complementary distribution between the specification of quantificational force and the specification of the modal base is cross-linguistically valid, there should be no languages that have 'fully specified' modals (where all cells in Table 2/3 have a different lexical

⁴ See Rullmann et al (to appear) for details and data.

element) and no languages that have ‘underspecified’ modals (where there is only one element for all the cells).

Preliminary research suggests that Javanese is different from both English and Lilloet Salish, and employs a lexical restriction on both quantificational force and the type of modal base, resulting in ‘full-specification’ (Table 4). Importantly, these results suggest that an inverse correlation between force and modal base type cannot be held, as hypothesized in Rullmann et al (to appear).

Table 4. Javanese modals⁵

	deontic	epistemic
universal	<i>kudu</i>	<i>mesthi</i>
existential	<i>ento</i> ⁹ , <i>olèh</i>	<i>mungkin</i>

I now turn to the supporting evidence for this claim, drawn from literary sources as well as elicitation⁶, in §3.

3. Javanese Modals encode for Force and type of Modal Base⁷

The focus will be on epistemic and deontic modals in this section. I argue that the Javanese modal system is fully specified; there is a different lexical word for each type of modal (see Table 4 above). Clues to how the modal space is carved in Javanese may begin with variable translations procured from grammars (Horne 1961), dictionaries (Robson et al 2002), and fieldwork, as in Table 5.

Table 5. Translations

	Horne (1961)	Robson et al (2002)	Fieldwork	Other⁸
<i>mesthi</i>	must probably of course	inevitable natural predictable	must should certainly	
<i>kudu</i>	must have to	really have to	must should	
<i>mungkin</i>			may possibly	maybe possibly likely
<i>ento</i> ⁹ <i>olèh</i>	receive get	to receive permission	permission to allowed to may, can	

⁵ Future research is necessary to determine how circumstantial and future modals behave in Javanese. Considering that both deontic and epistemic modals lexically specify for quantificational force, it might be that circumstantial and future modals do as well.

⁶ I follow the approach to fieldwork outlined in Matthewson (2004).

⁷ The examples in Section 4 are inspired from work in Rullmann et al (to appear).

⁸ Indonesian, Malay online dictionary: <http://www.websters-online-dictionary.com/translation/Javanese/>

The attentive reader will notice that certain modals in Javanese have the same translation in English: both *mesthi* and *kudu* may be translated as *must*, suggesting that these modals are universal, and both *mungkin* and *ento'*, *olèh* may be translated as *may*, suggesting that these modals are existential. I now examine each modal in turn.

3.1 *Mesthi* as a Universal Epistemic Modal

The modal *mesthi* ‘inevitable’, I argue, is best interpreted as a universal epistemic modal. Preliminary evidence that *mesthi* does not allow for variable force or conversational background comes from elicitation in (20) and (21). Example (20) shows that *mesthi* ‘inevitable’ allows a universal reading, but *mungkin* ‘may’, the other epistemic modal, does not, as it is not accepted in this context. The consultant clearly rejects *mungkin*, stating “It’s awkward here”.

(20) Context: Ahmed is calling for his dog. The dog is not coming. Ahmed looks for the dog all over the house, but he cannot find him. Then he looks outside in the yard. Ahmed still cannot find the dog. *The dog must have escaped.*

- a. asu kuwi **mesthi** wis ucul
dog the inevitable already get.loose
‘The dog must have escaped.’
- b. # asu kuwi **mungkin** wis ucul
dog the may past get.loose

It is apparent in (21) that *mesthi* ‘inevitable’ is felicitous in an epistemic context. However, the unacceptability of *kudu* ‘must’, the other universal modal, in this context suggests that *kudu* cannot be interpreted as an epistemic modal.

(21) Context: Given that the professor has written so many papers, and has many publications, and when he lectures, he is so knowledgeable, the students concluded that the professor is intelligent.

- a. Guru gedhé kuwi **mesthi** pinter
teacher big the inevitable smart
‘The professor must be intelligent.’
- b. # Guru gedhé kuwi **kudu** pinter
teacher big the must smart

⁹ The modal *ento'* is found to be spelled a number of different ways: *èntoq* (Horne 1961), *éntuk* (Robson et al 2002), and *ento'* (fieldwork). I will be using *ento'* for the remainder of this paper.

Textual examples from ‘Beginning Javanese’ by Elinor Horne support the claim that *mesthi* is restricted to a universal epistemic context. In (22), the subject, based on what she knows about Pardi, clearly believes the medicine to resolve his stomach ache.

- (22) Context: Pardi has a stomach ache now because he ate too many unripe mangoes. (Horne 1961:409)

Taq-tambanané, **mesthi** énggal mari
 me-given.medicine, inevitable fast recover
 ‘I’ll give him some medicine; **that’ll** fix him up fast.’

In sum, *mesthi* ‘inevitable’ is best interpreted as a universal epistemic modal; *mesthi* is consistently offered in such contexts in fieldwork. Moreover, this modal is not felicitous in existential epistemic contexts, and we will see in §3.3 that *mesthi* is also not felicitous in deontic contexts. It was noted as well that *mungkin* ‘may’ is not felicitous in epistemic *universal* contexts (cf.(20)); we turn to this modal next. Finally, we noted that *kudu* ‘must’ is not felicitous in epistemic contexts (cf. (21)); we will investigate this modal in §3.3 below.

3.2 *Mungkin* as an Existential Epistemic Modal

The modal *mungkin* ‘may’ is argued to be lexically restricted to existential epistemic contexts. Data from elicitation support this claim in (23) and (24). Consider the context in (23), the same as (20), except for the now viable possibility that the dog may be locked in the shed. As soon as there is possibility on the scene, *mesthi* is no longer acceptable. The infelicity of *mesthi* (23)b affirms that this modal cannot be interpreted as an existential modal; a different lexical word, *mungkin* ‘may’, is most appropriate here.

- (23) Context: Ahmed is calling for his dog. The dog is not coming. Ahmed looks for the dog all over the house, but he cannot find him. Then he looks outside in the yard. Ahmed still cannot find the dog, but maybe the dog is locked in the shed. The dog may have escaped.

- a. asu kuwi **mungkin** wis ucul
 dog the may PAST get.loose
 ‘The dog may have escaped.’
- b. # asu kuwi **mesthi** wis ucul
 dog the inevitable PAST get.loose

Another elicited example in (24) supports this claim. With using *mungkin* in this context, the consultant comments that “It is a prediction; Dullah is not so sure that the dog ate the food; maybe the cat did”, showing that *mungkin* is

indeed existential. That *mesthi* is not acceptable as an existential modal is also reiterated by the consultant: “You cannot say *mesthi* in this context because [it means] you are sure that the dog has eaten it.”

(24) Context: Dullah went to a big dinner at his parent’s house. There was a lot of food leftover. The next day, Dullah wanted to eat some of the leftover food, but he couldn’t find it – the dog may have eaten it.

a. asu kuwi **mungkin** wis mangan panganan kuwi
dog the probably already eat food the
‘The dog **may** have eaten the food’

b. # asu kuwi **mesthi** wis mangan panganan kuwi
dog the inevitable already eat food the

Example (26) follows a test based on the predictions of the logical schemas in (25)¹⁰, in which the second proposition asserts that the first proposition is perhaps false.

- (25) a. $\diamond \phi \wedge \diamond \neg \phi$ CONTINGENCY
b. $\square \phi \wedge \diamond \neg \phi$ CONTRADICTION

In particular, this test predicts that only an existential quantifier gives non-contradictory results. Therefore, that (26) is accepted by the consultant clearly establishes that the modal *mungkin* ‘may’ can only be existential; it is not universal.

(26) Context: It looks like Aminah has left the party; her bag is gone, but she might have taken it into the bathroom. So: Aminah may have left, but maybe she hasn’t left yet.

a. Aminah **mungkin** wis bali, tapi **mungkin** waé dhèwèké isèh
Aminah may PAST return, but may just 3SG yet

durung bali
not.yet return
‘Aminah may have left, but maybe she hasn’t left yet.’

b. **Mungkin** Aminah wis lungu.
may Aminah PAST go
‘Maybe Aminah already left.’

c. **Mungkin** Aminah durung bali.

¹⁰ Following Rullmann et al, to appear, 7.

may Aminah not.yet return
 ‘Maybe Aminah hasn’t left yet.’

In short, the data in §3.2 indicates that *mungkin* ‘may’ can only be interpreted as an existential epistemic modal as it consistently requires such specific contexts. This modal was shown to be not felicitous in universal epistemic contexts (cf. (23) and (24)), and the logical predictions of (25) confirms that *mungkin* can only be existential.

3.3 *Kudu* as a Universal Deontic Modal

Another Javanese modal, *kudu* ‘must’, is also argued to lexically specify for both quantificational force and the type of modal base: I claim that *kudu* is best interpreted as a universal deontic modal. The elicited example in (27) illustrates this claim. The context specifies the force as universal, and specifies the conversational background as deontic (imagine a parent saying this to his son). For this context, only *kudu* ‘must’ is acceptable. Moreover, the infelicity of *mesthi* ‘inevitable’ in this context shows that this modal cannot be deontic, but only epistemic. The consultant clearly rejects *mesthi*, as a new context is offered for (27)b, one that is noticeably epistemic in nature: “Your son usually wakes up early, so you predict that he will wake up early for his birthday as well”.

(27) Context: My son should wake up early tomorrow morning so he can enjoy his birthday.

a. ana-ku **kudu** tangi luweh isu’ sesok
 son-my must get.up early morning tomorrow
 ‘My son should wake up early tomorrow morning.’

b. # ana-ku **mesthi** tangi luweh isu’ sesok
 son-my inevitable get.up early morning tomorrow

The following two examples are taken from Horne’s *Beginning Javanese*. In (28), *kudu* ‘must’ is shown to be employed in a universal deontic context. The consultant was asked if the modal *ento* ‘permit’ could also be employed in this context; the infelicity of *ento* ‘permit’ here shows that *ento* ‘does not allow for a universal interpretation.

(28) Context: A pound of rice usually lasts for three days, and there are two pounds left now. So I have to make the remaining rice last for six more days. (Horne 1961:269)

a. Dadi aku **kudu** njedhengké turahan beras kuwi kanggo
 become I must be.enough remain rice the for
 nem dinô menèh

six day again
 ‘So I **have to** make the remaining rice last for six more days.’

- b. # Dadi aku **ento’** njedhengkaké turahan beras kuwi kanggo
 become I permit be.enough remain rice the for
 nem dinô menèh
 six day again (fieldwork)

Finally, in another textual example in (29), the reader will note that the translation in Horne’s grammar is given as *must*, lexically specified as universal in English, suggesting that *kudu* is also universal.

- (29) Context: The housekeeper starts to cook in the kitchen by noon. A servant girl helps her. (Horne 1961:100)

Jèn tjah-tjah pôdhô bali sôngkô sekolah, si-mbôq **kudu** rampong
 when child-child PL back from school, mother must finish
 ‘When the children get back from school, the housekeeper **must** be finished.’

Thus, the modal *kudu* is consistently given for universal deontic contexts, it is not felicitous in epistemic contexts (cf. (21) in §3.1), or in existential deontic contexts, a matter to which we turn now in §3.4. Therefore, it is argued that *kudu* ‘must’ is best interpreted as lexically specified for both quantificational force (i.e. as universal), and for the type of modal base (i.e. as deontic).

3.4 *Ento’, olèh* as an Existential Deontic Modal

The fourth cross-section of force and modal base, existential deontic, is demonstrated by two modals in Javanese: *ento’* and *olèh*. The modal *ento’* ‘permit’ is used to illustrate the following examples; *olèh* behaves exactly the same. In example (30) from fieldwork, we note that *ento’* ‘permit’ is offered for existential deontic contexts. This example also confirms that *kudu* ‘must’ is interpreted only as universal, shown by the unacceptability of (30)b for this context.

- (30) Context: According to the rules of the hospital, only family members are allowed to enter the patient’s room during visiting hours. But since you are a really close friend, the nurse says that you may come in.

- a. awakmu **ento’** melbu
 you permit enter
 ‘You may come in.’

- b. # awakmu **kudu** melbu
 you must enter
 ‘You may come in.’

Consider next the context in (31), offered by the consultant to help explain the interpretation of *ento*, which is clearly existential (i.e. you may or may not carry a rock) and deontic (i.e. the doctor has granted permission for you to do so) in nature. Furthermore, this sentence cannot mean ‘I am able to carry a three tonne rock’; the modal *iso* ‘can’ would instead be employed.

- (31) Context offered: The doctor allows me to carry a large rock because I’m healthy now.

aku **ento**’ ngangkat watu telong ton
 I permit carry rock three tonne
 ‘I can carry a three tonne rock.’

These two examples above have shown that *ento*’ and *oleh* are consistently given for existential deontic contexts. Furthermore, the modal *ento*’ ‘permit’ is not felicitous in universal deontic contexts, as seen in (28)b in §3.3. Therefore, these modals are argued to be best interpreted as lexically specified for both existential quantification and for a deontic modal base.

4. Conclusion

In conclusion, I have argued that the modals *mesthi* ‘inevitable’ and *kudu* ‘must’ behave similarly to auxiliaries, but display unique categorial effects with respect to the addition of the affixes *sa*’-...-*ne*, suggesting that modals should be treated as a separate grammatical category.

As well, I have presented data in Pesisiran Javanese that supports a fully specified modal system where quantificational force and the type of modal base are both lexically restricted.

Table 5. Modal distinctions

	<i>selective modal base</i>	<i>unselective modal base</i>
<i>specified force</i>	Javanese	English
<i>unspecified force</i>	St’át’imcets	?

The data presented in this paper suggests that the complementary hypothesis (Rullmann et al, to appear), in which upper left and lower right cells remain blank (see Table 5), is not cross-linguistically valid. It will be interesting to pursue how circumstantial and future modality are represented in Javanese.

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