

# The interaction of the event description and the expression of modality in Saamáka

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## 1 Introduction

The focus of this paper is modality in Saamáka and its aim is to establish the position of the modal morphemes in the functional hierarchy of the clause. In order to answer this question, it needs to be determined:

- what the modal morphemes are
- what their semantics are
- what their syntactic distribution is

Saamáka has two modal morphemes, necessity modal *musu* and possibility modal *sa*, as illustrated in (1) and (2) respectively<sup>1</sup>.

- (1) a. Dí bási táa mi musu gó woóko a dí kuku.  
DET boss COMP 1SG MOD go work LOC DET kitchen  
‘The boss said that I am obliged to work in the kitchen’.
- b. Déé míi de musu nyá dí góma.  
DET.PL child there MOD eat DET cake  
‘Those children must have eaten the cake’.

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<sup>1</sup>Abbreviations: SG = singular; PL = Plural; MOD = modal marker; PST = Past tense; IMP = Imperfective; NEG = Negation; BE = Copula; COMP = Complementizer; DET = Determiner; ART = Article; LOC = Locative; Q = Question marker; NARR = narrative marker; FU = prepositional complementizer *fu*.

- (2) a. Mi bi sipáli dí móni u mi henmbei mi sa báí sondí  
 1SG PST save DET money FU 1SG therefore 1SG MOD buy something  
 nóúnóú.  
 now  
 ‘I saved my money, therefore I can buy something now’.
- b. Dí Gaamá táa wi sa gó.  
 DET G COMP 1PL MOD go  
 ‘The Granman said that we are allowed to leave’.
- c. Lathoya sa gó a húku.  
 L MOD go LOC hook  
 ‘Lathoya might have gone fishing’.

This paper is organised as follows:

- Section 2: Theoretical Background
- Section 3: Meaning and Interpretation of *musu* and *sa*
- Section 4: Ordering and Interpretation
- Section 5: Syntactic Decomposition
- Section 6: Summary

## 2 Theoretical Background

### 2.1 Possible World Semantics: Kratzer (1977; 1991)

Modal Force	necessity	
	possibility	
Conversational Background	Modal Base	epistemic circumstantial
	Ordering source	epistemic deontic dynamic bouletic empty stereotypical

- (3) Context: The coronation of the King is tomorrow. Therefore someone says:  
 Morgen darf es nicht regnen.  
 tomorrow may it not rain
- Modal Force  $\Rightarrow$  Existential
  - Modal base  $\Rightarrow$  Circumstantial  $\rightarrow$  ‘the view of the speaker’s desires regarding the weather circumstances’
  - Ordering Source  $\Rightarrow$  Bouletic  $\rightarrow$  ‘the ideal world in which the speakers desires come true’
- (4) Context: According to what God wants, it is necessary that you work six days a week. In some societies, what God wants is commanded.  
 Ich muss sechs Tage arbeiten und alle meine Werke tun.  
 I must six days work and all my work do
- Modal Force  $\Rightarrow$  Universal
  - Modal base  $\Rightarrow$  Circumstantial  $\rightarrow$  ‘the view of God’s wishes’
  - Ordering Source  $\Rightarrow$  Deontic  $\rightarrow$  ‘the ideal world in which God’s laws are obeyed’

## 2.2 Syntactic distribution: Hacquard (2006, 2010)

- It is not the context which triggers the right modal interpretation, but the structural position of the modal which restricts its interpretation.
  - The position of a modal in the Fseq depends on the type of complement a modal merges with
  - Modality is not only relative to worlds, but also to times and individuals  $\Rightarrow$  a particular time/individual pair correlates with a particular modal interpretation.
- (5) Epistemic in matrix clause  
 Mary had to be home (at the time of the crime) (Hacquard, 2010, 87).
- a. Modal anchor time: TU  
 $\rightarrow$  It is necessary, given what is known now, that Mary was home.
  - b. Individual: Speaker
- (6) Epistemic in embedded clause  
 Bill thinks that John must have won (Hacquard, 2010, 92).
- a. Modal anchor time: Attitude time  $\rightarrow$  TU
  - b. Individual: Attitude holder  $\rightarrow$  *Bill*

(7) Circumstantial

Mary had to take the train (Hacquard, 2010, 93).

- a. Modal anchor time: Provided by T → PAST  
→ Given Mary's circumstances then, she had to take the train then.
- b. Individual: Agent → *Mary*

Other time/individual pair - modal interpretation combinations (for example: times provided by Tense/speaker) than the ones sketched above are not attested.

How can this be explained?

- Events consist of time/individual pairs and different events correlate with different time/individual pairs ⇒ modality is relative to an event of evaluation.
- The event type determines which time/individual pair a modal morpheme is anchored to and from this, the modal interpretation follows.

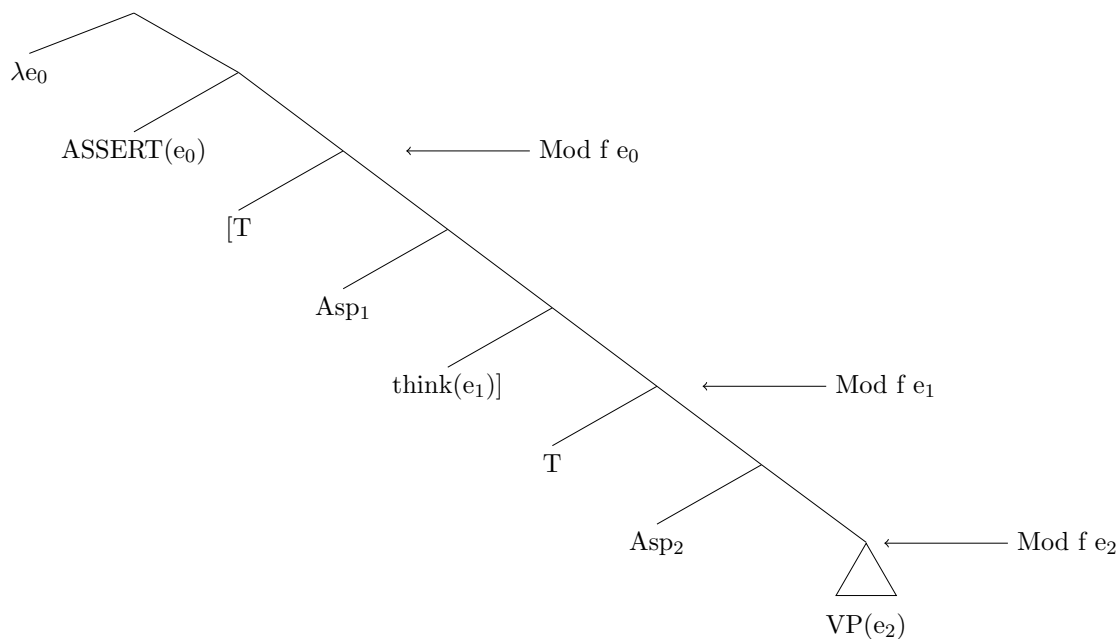
There are three types of events:

- Speech events correlate with the TU/speaker pair → epistemic in matrix clause
- Attitude events correlate with attitude time/attitude holders → epistemic in embedded clause
- vP events correlate with the time provided by Tense/agent → circumstantial

- Due to general locality constraints, each event type is obligatorily bound by a local event binder; one event binder is located above Tense in the underlying structure, and one above vP.

- These positions correlate with the positions of the different modal readings attested cross-linguistically ⇒ Epistemic modals appear above Tense and circumstantial modals below Tense and Aspect.

(8)



- A speech event and an attitude event are propositional contentfull sentences and therefore can bind an epistemic modal base, while a vP event is propositionally contentless and therefore cannot bind an epistemic modal base.

- This restriction explains why epistemic modal morphemes are located high in the functional sequence as opposed to circumstantial modal morphemes, which do not carry this requirement and are therefore located lower.

This is summarized in Table 3.

Modal Base	Type of Event	Event Binder	Individual	Modal Anchor Time
Epistemic <sub>1</sub>	speech event	above TP	speaker	TU
Epistemic <sub>2</sub>	attitude event	above TP	attitude holder	attitude time
Circumstantial	vP event	Aspect	participant	provided by Tense

Table 1: Event relativity of Modal morphemes

### 3 Meaning and Interpretation of *musu* and *sa*

#### 3.1 Necessity Modality: *musu*

##### 3.1.1 Deontic Obligation

Deontic modality involves a certain body of laws and obligations. Obligation implies that external individuals/factors impose rules or laws on the agent. Someone with authority can place an obligation on someone (Palmer 2001).

- (9) Context: In the Saamáka society, people who have had an operation are not allowed to work for three months afterward. This implies for women, for example, that they cannot work on their vegetable garden nor pound rice, they are only allowed to do certain small tasks.

Báka té dí opalási nóo i musu dé díí líba sóndo woóko.  
back when DET operation NARR 2SG MOD BE three months without work  
'After an operation, you must be three months without work'.

- Aktionsart ⇒ Stative
- Modal base ⇒ Circumstantial
- Ordering Source ⇒ Deontic

- (10) Context: We are talking about a pupil who has not been studying enough.  
Nóúnóu a musu léi móo taánga ée a ké gó a dí óto klas.  
now 3SG MOD learn more strong if 3SG want go LOC DET other class  
'Now, she must learn harder if she wants to be promoted to the next class'.

- Aktionsart ⇒ Activity
- Modal base ⇒ Circumstantial
- Ordering Source ⇒ Bouletic and Teleological

- (11) Context: This is an extract from a Saamáka folk-tale about three trees who talk about what they would like to happen to them after they are felled.

Ée de kó kóti mi akí tyá gó a gandá, nóo mi ké de musu  
if 3PL come cut 1SG here carry go LOC village NARR 1SG want 3PL MOD  
mbéi wán sutúu ku mi té a hánso, nóo de dá dí kónu be  
make ART chair with 1SG until 3SG beautiful NARR 3PL give DET king ?

a ta sindá a mi.  
3SG IMP sit LOC 1SG

'If they come and cut me, I want them to be obliged to make a chair out of me, a beautiful one, they give it to the king so he sits on me' (Medzen, 1979, 4).

- Aktionsart  $\Rightarrow$  Accomplishment
- Modal base  $\Rightarrow$  Circumstantial
- Ordering Source  $\Rightarrow$  Bouletic

(12) Context: Freddy is a man in his mid thirties who is still single. In the Saamáka society, this is unusual and it is desirable for Freddy to find a wife.

A musu féni wán muyée téi bifó a gaáandi.

3SG MOD find ART woman take before 3SG old

‘He should find a wife before he gets too old’.

- Aktionsart  $\Rightarrow$  Achievement
- Modal base  $\Rightarrow$  Circumstantial
- Ordering Source  $\Rightarrow$  Bouletic

### 3.1.2 Deductive Epistemic Modality

Epistemic modality involves the evaluation of a proposition by a speaker regarding its truth value. Deductive epistemic modality indicates that a speaker is rather certain concerning the truth value of the expressed situation (Palmer 2001).

- In its epistemic reading *musu* is not selective regarding the type of verb it combines with.
- Interestingly, the temporal interpretation of an epistemic sentence is effected by aktionsart.

A sentence containing a modal morpheme has two time intervals (in the sense of Condoravdi 2002; Laca 2008):

- Temporal perspective refers to ‘*time from which the modal background is accessed*’ i.e. modal anchor time  $\Rightarrow$  ModT (Laca 2008, 4)
- Temporal orientation refers to ‘*the time at which the temporal property is instantiated*’ i.e. modal evaluation time  $\Rightarrow$  EvT (Laca 2008, 4)

It is demonstrated that in Saamáka the choice of modal base is influenced by aktionsart and the temporal orientation of the eventuality.

(13) Context: The speaker is expecting Freddy to come, someone knocks on the door.

The speaker says:

Wán sembe ta náki mi dóo. A musu dé Freddy.

ART person IMP hit 1SG door 3SG MOD BE Freddy

‘Someone is knocking on my door. It must be Freddy’.

a. ModT = present; EvT = present

- Aktionsart ⇒ Stative
- Modal base ⇒ Epistemic
- Ordering Source ⇒ Epistemic

- (14) Context: Jacky is one of the women in the village who regularly bakes bread with the intention of selling it. At an earlier time today, the speaker passed Jacky's house. When she passed it, she smelled freshly baked bread. The addressee asks her if she knows if Jacky has bread today. The speaker replies:

Jacky musu yasá beée tidé bigá mi sumée feisi beée dí mi pasá  
J MOD bake bread today because 1SG smell fresh bread when 1SG pass  
neen písi.

LOC.3SG place

‘Jacky must have baked bread today, because when I passed her place I smelled fresh bread’.

a. ModT = present; EvT = past

- Aktionsart ⇒ Activity
- Modal base ⇒ Epistemic
- Ordering Source ⇒ Informational

- (15) Context: The speaker knows that the agent went fishing today. Based on the speaker's experience of the amount of fish in the river. She utters:

Dí wómi musu kisi físi bigá a bi gó a húku.

DET man MOD catch fish because 3SG PST go LOC hook

‘The man must have caught fish, because he went fishing’.

a. ModT = present; EvT = past

- Aktionsart ⇒ Accomplishment
- Modal base ⇒ Epistemic
- Ordering Source ⇒ Stereotypical

- (16) Context: Based on the evidence provided by the happiness of the people in the village, the speaker asserts that it must be the case that Senni is the one who won the boxing game.

Senni músu wíni dí féti.  
 S MOD win DET fight  
 ‘Senni must have won the fight’.

a. ModT = present; EvT = past

- Aktionsart ⇒ Achievement
- Modal base ⇒ Epistemic
- Ordering Source ⇒ Stereotypical

### 3.1.3 Summary

	modal force	modal base	ordering source
<i>musu</i>	necessity/universal	no restrictions	no restrictions

Table 2: *Musu* in possible world semantics

Choice of modal base in Saamáka depends on:

- Dynamicity: whether verb is stative or eventive
- Temporal orientation: whether modal evaluation time expresses future or past

Both (17) and (19) are ambiguous between a deontic obligation reading and a deductive epistemic reading.

- (17) A músu dé a wósu.  
 3SG MOD BE LOC home  
 a. ‘S/he is obliged to be at home’.  
 b. or ‘It must be that s/he is at home’.
- (18) a. Circumstantial: ModT = present; EvT = present  
 b. Epistemic: ModT = present; EvT = present
- (19) Senni musu kisi fisi.  
 S MOD catch fish  
 a. ‘Senni is obliged to catch fish’.  
 b. or ‘It must be that Senni has caught fish’.
- (20) a. Circumstantial: ModT = present; EvT = future  
 b. Epistemic: ModT = present; EvT = past

Question: How can this distinction be accounted for?

1) Recall Hacquard (2006, 2010):

Modal Base	Type of Event	Event Binder	Individual	Modal Anchor	Time
Epistemic <sub>1</sub>	speech event	above TP	speaker	TU	
Circumstantial	vP event	Aspect	participant	provided by Tense	

Table 3: Event relativity of Modal morphemes

2) Is Tense part of the modal complement?

- Yes, in case of the epistemic reading of *musu*
- No, in case of the circumstantial reading of *musu*

### Some background information

Ideas concerning Tense in Saamáka:

- Covertly expressed
- Denotes an identical relation between TT and TU  $\Rightarrow$  TU = TU expressing PRESENT
- Requires a momentary TT and not an interval in time

Difference between states and events (in the sense of Taylor 1977; Bach 1986; Dowty 1986; Hallman 2009):

- Events express duration  $\Rightarrow$  they require non-trivial interval to evolve
- States are durationless  $\Rightarrow$  they are true at a moment

- Consequently, eventive verbs in Saamáka cannot be merged directly with PRESENT Tense.

- Stativity requirement placed by Tense on its complements requires the occurrence of a state deriving functional head such, as Perfect.

Ideas concerning composition of Perfect (in the sense of Parsons 1990; Musan 2001):

- Rstate<sub>e</sub> partly included in TSit
- Rstate<sub>e</sub> IN TT; TU = TT
- this entails that e < TU

- This morphological null Perfect morpheme is present in the underlying structure when *musu* conveys an epistemic reading and embeds an eventive verb.
- The presence of this morphological null Perfect morpheme gives rise to a past interpretation of the eventuality.
  
- The future interpretation of the modal evaluation time of a sentence in which *musu* conveys a circumstantial reading is due to the modal itself, because ‘*modals expand the local time of evaluation into the future*’ (Condoravdi 2002, 71, see also Zagona 1990; Barbiers 1995; Stowell 2004; Laca 2008).

To sum up, the difference in temporal interpretation between epistemic and circumstantial modality reading of *musu* is explained by assuming a different element which provides the modal anchor time and a different type of modal complement.

## 3.2 Possibility Modality: *sa*

### 3.2.1 Deontic Permissive

Permissive falls under the category of deontic modality and it implies that we are talking about ‘laws’ or ‘moral values’ which are optional and not obligatory (Palmer 2001).

- (21) Senni áá fu gó a sa fiká.  
 S NEG.have FU go 3SG MOD remain  
 ‘Senni does not have to go, he is allowed to stay here’.

- Aktionsart ⇒ Stative
- Modal base ⇒ Circumstantial
- Ordering Source ⇒ Deontic

- (22) Mi sa peé ku i, e?  
 1SG MOD play with 2SG NARR  
 ‘May I play with you?’

- Aktionsart ⇒ Activity
- Modal base ⇒ Circumstantial
- Ordering Source ⇒ Deontic

- (23) Dí muyeemii sa lési dí búku akí.  
 DET girl MOD read DET book here  
 ‘The girl may read this book’.

- Aktionsart ⇒ Accomplishment
- Modal base ⇒ Circumstantial
- Ordering Source ⇒ Deontic

(24) Context: This is an extract from a Saamáka folk-tale about three trees (see example (11)).

Ma té má sa dóu wán gaán sípi mi wanwan nóo de  
 but when 1SG.NEG MOD arrive ART big ship 1SG alone NARR 3PL  
 sa síku óto páu tyá kó mókísi ku mi ma mi musu dé gaán  
 MOD search other tree carry come mix with 1SG but 1SG MOD BE big  
 se fu déé óto páu.  
 side FU DET.PL other tree  
 ‘But as I cannot be made into a big ship by myself, they are allowed to search for other trees and mix them with me, but I must be the most important one of all trees’ (Medzen, 1979, 3).

- Aktionsart ⇒ Achievement
- Modal base ⇒ Circumstantial
- Ordering Source ⇒ Deontic

### 3.2.2 Dynamic Ability

Ability refers to the capacity of an agent to do what is expressed by the predicate. It includes the physical and mental ability of the agent, but it can also refer to the circumstances that make a proposition possible (see Palmer 2001).

(25) A dí éside mi skífi wán biífi mánda dá mi baáa faa  
 LOC DET yesterday 1SG write ART letter send give 1SG brother FU.3SG  
 sa sábi táa mi ó kó neen a dí óto wíki.  
 MOD know COMP 1SG MOD come LOC.3SG LOC DET other week  
 ‘Yesterday I wrote and sent a letter to my brother in order for him to be able to know that I will come to his place next week’.

- Aktionsart ⇒ Stative
- Modal base ⇒ Circumstantial
- Ordering Source ⇒ Dynamic and Informational

(26) Ée i ta wáka ta lóntu té nóo hén i sí wasiwási i musu  
 if 2SG IMP walk IMP round when NARR NARR 2SG see wasps 2SG MOD  
 kulé séépi kumafa i sa kulé bigá wógi hén i sí de.  
 run self like 2SG MOD run because evil 3SG 2SG see there  
 ‘If you are walking and you see wasps you have to run as fast as you can run,  
 because it is dangerous to look at them’ (Medzen, 1984, 68).

- Aktionsart ⇒ Activity
- Modal base ⇒ Circumstantial
- Ordering Source ⇒ Dynamic

(27) Tyúba á musu kaí nóo mi sa kóti dí alísi u mi búnubúnu.  
 rain NEG MOD fall NARR 1SG MOD cut DET rice FU 1SG good  
 ‘It must not rain, so I can harvest my rice well’.

- Aktionsart ⇒ Accomplishment
- Modal base ⇒ Circumstantial
- Ordering Source ⇒ Dynamic and Teleological

(28) Í lopeewiwi de de á ta nyá én ée i nyá én i sa  
 DET type of plant there 3PL NEG IMP eat 3SG if 2SG eat 3SG 2SG MOD  
 déde.  
 die  
 ‘That lopeewiwi, they do not eat it. If you eat it you can die’.

- Aktionsart ⇒ Achievement
- Modal base ⇒ Circumstantial
- Ordering Source ⇒ Stereotypical

### 3.2.3 Speculative Epistemic

Epistemic modality expresses the degree of commitment of the speaker towards the truth value of the proposition and as epistemic marker, *sa* indicates the uncertainty of the speaker towards the truth value of a proposition.

(29) Context: From the available evidence (that the woman has been at home the whole week, while usually she goes to her vegetable garden every day), the speaker draws the conclusion that there exists a possibility that the woman is ill. Since the speaker has not spoken to the woman or any of her relatives, she is not certain if she has drawn the right conclusions.

Dí muyée sa dé ku síki bigá wán hí wíki kaa a dé a  
 DET woman MOD BE with ill because ART all week already 3SG BE LOC  
 wósu.

house

‘The woman might be ill because the whole week already she has been at home’.

a. ModT = present; EvT = present

- Aktionsart ⇒ Stative
- Modal base ⇒ Epistemic
- Ordering Source ⇒ Informational

(30) Context: Someone is looking for the speaker’s neighbour, Kenneth who is not at home. The speaker didn’t see him leave, but does know that he loves to go hunting in the afternoon.

Kenneth sa gó a hóndi bigá á dé neen písi.  
 3SG MOD go LOC hunt because 3SG.NEG BE LOC.3SG place

‘Kenneth might have gone hunting because he is not at home’.

a. ModT = present; EvT = past

- Aktionsart ⇒ Activity
- Modal base ⇒ Epistemic
- Ordering Source ⇒ Empty

(31) Context: Earlier today the speaker has baked a cake which she speaker left it in the kitchen. Afterward she went to work outside. When she returns, the cake has been eaten. The speaker does not know who has eaten it, but does know that the children have come home from school and that they like your cake very much. There is a possibility that they have eaten it.

Déé míi nóo sa nyá dí góma.  
 DET.PL child NARR MOD eat DET cake

‘The children may have eaten the cake’.

a. ModT = present; EvT = past

- Aktionsart ⇒ Accomplishment
- Modal base ⇒ Epistemic
- Ordering Source ⇒ Empty

- (32) Context: This morning Senni left the village and travelled via boat and mini-van to Paramaribo. At this moment, it is late in the afternoon. There is a possibility that he arrived already, but since the speaker does not really know what the condition of the road is, there is also a possibility that he is still on his way. He usually calls the speaker when he arrives in Paramaribo. The speaker’s neighbour wants to know if Senni is in the city already. The speaker answers:  
 Senni sa dóu a fóto kaa ma á béli etí.  
 S MOD arrive LOC P already but 3SG.NEG call yet  
 ‘Senni might have arrived in Paramaribo already, but he has not called yet’.
- a. ModT = present; EvT = past

- Aktionsart ⇒ Achievement
- Modal base ⇒ Epistemic
- Ordering Source ⇒ Stereotypical

### 3.2.4 Summary

	modal force	modal base	ordering source
<i>sa</i>	possibility/existential	no restrictions	no restrictions

Table 4: *Sa* in possible world semantics

The sentences in (33) and (33) are ambiguous between a permissive and deductive epistemic modality interpretation.

- (33) A sa dé a sikóo.  
 3SG MOD BE LOC school  
 a. ‘S/he is allowed to be at school’.  
 b. or ‘It might be that s/he is at school’.
- (34) a. Circumstantial: ModT = present; EvT = present  
 b. Epistemic: ModT = present; EvT = present
- (35) A sa gó a lío.  
 3SG MOD go LOC river  
 a. ‘S/he is allowed to go to the river’.  
 b. or ‘It may be that s/he has gone to the river’.
- (36) a. Circumstantial: ModT = present; EvT = future  
 b. Epistemic: ModT = present; EvT = past

### 3.3 Summary

Dynamicity	Modal Base	ModT	Dependent	EvT
stative	circumstantial	present	Tense	present/future
	epistemic	present	TU	present
eventive	circumstantial	present	Tense	future
	epistemic	present	TU	past

Table 5: Aktionsart, Modal Base and Modal Evaluation Time

## 4 Ordering and Interpretation

Under a cartographic approach to language structure, it is assumed that each functional element is situated in its own functional node in the functional sequence of the clause and different semantic and syntactic characteristics are associated with each functional node (Rizzi 1997; Cinque 1999, 2001).

Two most commonly used diagnostics to test whether epistemic modal morphemes are situated in a different position than circumstantial modal morphemes:

- Double modal constructions
- Interaction Tense and Modality

### 4.1 Double modal constructions

Expected order: epistemic > deontic > dynamic (Cinque 1999, 2001; Nauze 2008)

- (37) De man moet naar zijn werk kunnen lopen want hij  
 DET man MOD.3SG.PRES DIR 3SG.POSS work MOD walk because 3SG  
 woont vlakbij.  
 live.3SG.PRES nearby

‘It must be that the man is able to walk to work, because he lives close’.

a. deductive epistemic > dynamic ability

- (38) Lennard heeft naar school kunnen moeten gaan om zijn  
 L have.PRES.3SG to school MOD MOD go to 3SG.POSS  
 opdracht af te maken.  
 assignment finish

‘It might be that Lennard is obligated to go to school to finish his assignment’.

- a. speculative epistemic > deontic obligation

What about Saamáka?

- (39) Context: In the Saamáka society it is acceptable for a man to have more than one wife if he is able to (financially) support all of them. The speaker is talking about one of his friends who has only one wife.

A musu sa wáka ku móo muyée ma á ké.

3SG MOD MOD walk with more woman but 3SG.NEG want

‘It must be that he is able to be in a relationship with more women, but he does not want to’.

- a. deductive epistemic > dynamic ability

Problematic are the combination of the epistemic reading of *sa* with the obligative reading of *musu*.

- (40) Context: Someone from outside the European Union wants to travel within the European Union. She asks the speaker if one has to show your passport at the border. In general, people do not have to show their passports. However, sometimes customs checks everyone. In those cases one is required to show them your passport.

\*I sa musu léi de yu pasiport.

2SG MOD MOD show 3PL 2SG passport

Intended interpretation: ‘It might be that you are obliged to show them your passport’.

- (41) Dí muyée musu sa fón alísi.

DET woman MOD MOD hit rice

‘The woman is obliged to be able to pound rice (because otherwise she cannot eat)’.

or ‘It must be that the woman is allowed to pound rice (allowed by the doctor, because she has been ill and was not allowed to work)’.

or \*‘It might be that the woman is obliged to pound rice’.

or \*‘The woman is obliged to be allowed to pound rice’.

A close study of the data in my corpus reveals that the epistemic *sa* does not co-occur with *musu* (regardless of its interpretation).

- (42) A sa dé táa i musu léi de yu pasiport.

3SG MOD BE COMP 2SG MOD show 3PL 2SG passport

‘It might be that you are obliged to show them your passport’.

- (43) Kándé i musu léi de yu pasiport.

maybe 2SG MOD show 3PL 2SG passport

‘Maybe you are obliged to show them your passport’.

The order of TMA elements in Saamáka is very rigid, *musu* always precedes *sa*. Any deviations of this *musu sa* order are judged ungrammatical, as exemplified in (40) above.

I explain this by arguing that modal morphemes with a universal modal quantification cannot be embedded by other modal morphemes (in the sense of Beghelli and Stowell 1997; Cormack and Smith 2002; Nilsen 2003).

## 4.2 Modality and the interaction with the temporal pronominal *bi*

Cross-linguistic data indicates that epistemic modality is situated above Tense and circumstantial modality below Tense (Cinque 1999, 2001; Hacquard 2006, 2010).

A problem for investigating this claim is that the temporal ordering relation under Tense in Saamáka is expressed via a morphological null morpheme which expresses a topic time equals anchor time temporal ordering relation. In default, this anchor time is the time of utterance, or,  $TT = AT = TU$ ; i.e. PRESENT Tense.

The morpheme *bi* in Saamáka is a situational pronominal which establishes the anchor time directly and make it not to be TU but some contextual past moment which is situated in  $FinP \Rightarrow AT < TU$ .

The interpretation of the temporal perspective of a modal sentence is informative.

→ Epistemic modality can only take the TU as ModT.

→ Circumstantial modality depends on T regarding its ModT.

Expectation: *bi* can co-occur with the modals regardless of their interpretation.

(44) Dí wómi bi musu súti dí píngo kí.  
DET man PST MOD shoot DET kind of pig kill  
‘The man had to kill the wild pig (because it would have killed him otherwise)’.  
or \*‘The man must have shot the wild pig’.

(45) Dí muyée bi sa mbéi maripase fátu.  
DET woman PST MOD make maripa butter  
‘The woman was able to make maripa butter’.  
or ‘The woman was allowed to make maripa butter’.  
or \*‘The woman might have made maripa butter’.

Actual Fact: the epistemic interpretation of both *musu* and *sa* is unavailable when they co-occur with *bi*.

The sentences in (44) and (45) provide extra evidence in favour of the claim that epistemic modality takes TU as its modal anchor time.

### 4.3 Modal complement

I aim to demonstrate that circumstantial modal morphemes merge with a smaller modal complement than epistemic modal morphemes (in the sense of Hacquard 2006, 2010).

- The temporal orientation of the modal evaluation time gives evidence in favour of the claim that epistemic modals embed a different type of complement than circumstantial modals.

- Eventive verb + Future temporal orientation  $\Rightarrow$  Circumstantial Modal Base
- Eventive verb + Past temporal orientation  $\Rightarrow$  Epistemic Modal Base

- Tense in Saamáka denotes an identical relation between TT and TU and requires a momentary TT.

- Consequently, Tense in Saamáka requires a stative complement.

State deriving functional heads:

- Perfect  $\Rightarrow$  Resultant state (Parsons 1990)
- Imperfective *ta*  $\Rightarrow$  In-progress state (Parsons 1990)
- Modals (Werner 2003)

- In Saamáka, the morphological null Perfect morpheme gives rise to a past orientation of the embedded eventuality when the modal conveys an epistemic interpretation

- Consequently, epistemic modals embed Perfect (and, thus, Tense).

- The modal itself shifts the evaluation time forward in time when the modal conveys a circumstantial interpretation (in the sense of Palmer 2001; Condoravdi 2002; Werner 2003; Stowell 2004).

- Circumstantial modals satisfy the stativity requirement placed by Tense on its complements.

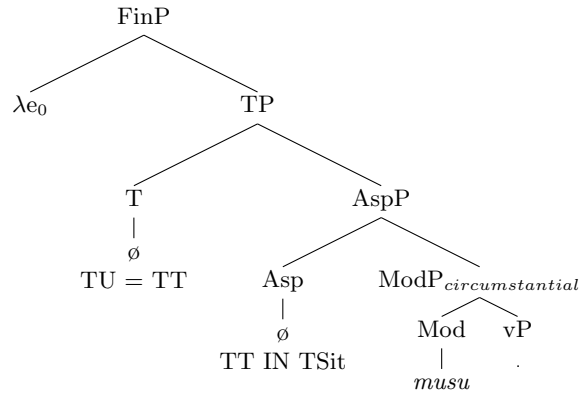
- Consequently, circumstantial modals are situated below Tense.

## 5 Syntactic decomposition of modality

The sentence in (46) expresses a deontic obligation reading.

- (46) a. A musu féni wán muyée téi bifó a gaáandi.  
 3SG MOD find ART woman take before 3SG old  
 ‘He should find a wife before he gets too old’.

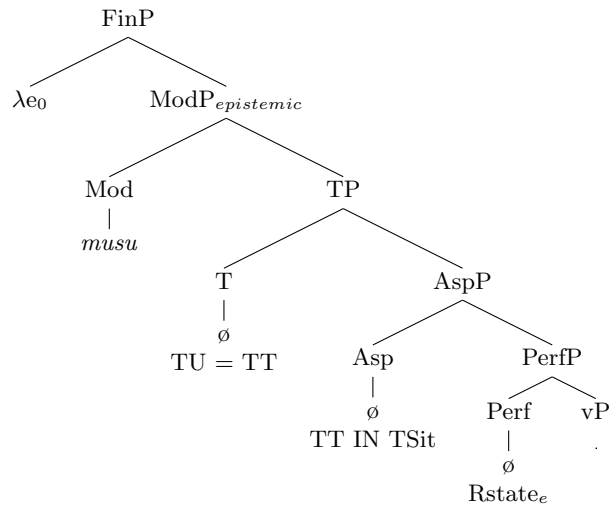
b.



The sentence in (47) conveys a deductive epistemic reading.

- (47) a. Senni músu wíni dí féti.  
 S MOD win DET fight  
 ‘Senni must have won the fight’.

b.



## 6 Summary

This paper studied the semantic interpretation and syntactic distribution of the modal morphemes *musu* and *sa*. The former has a universal quantificational force and it gives rise to a deontic obligation and a deductive epistemic modality reading of a sentence, while the latter has an existential quantificational force and it conveys a deontic permissive, dynamic ability and speculative epistemic modality reading.

In Saamáka, the choice of modal base is not purely pragmatic (as in Kratzer’s 1977; 1991 work), but is constrained by:

- The modal complement
- The modal anchor time  $\Rightarrow$  TU vs. Tense
- The dynamicity of verb  $\Rightarrow$  stative vs. eventive
- The temporal interpretation of the EvT  $\Rightarrow$  past vs. future

This results in the following correlations:

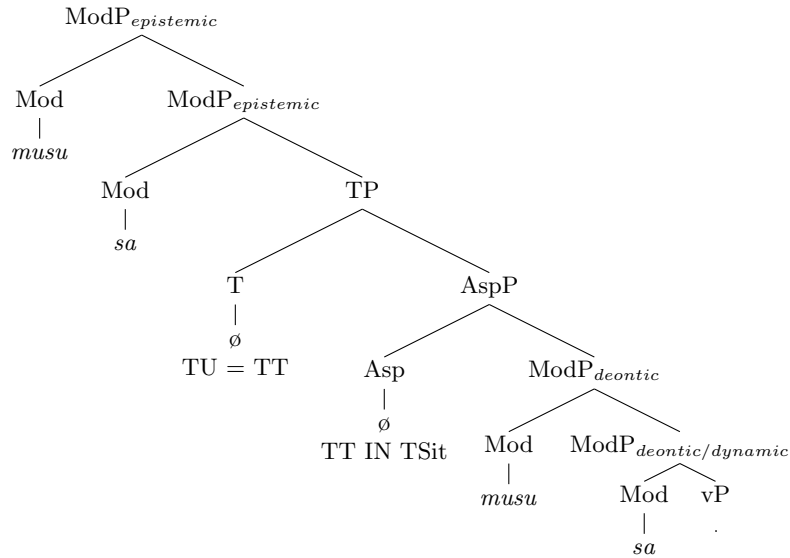
Dynamicity	Modal Base	ModT	Dependent	EvT
stative	circumstantial	present	Tense	present/future
	epistemic	present	TU	present
eventive	circumstantial	present	Tense	future
	epistemic	present	TU	past

Table 6: Aktionsart, Modal Base and Modal Evaluation Time

This difference in modal complement results in a different position in the functional hierarchy of the clause:

- Circumstantial modals  $\Rightarrow$   $\text{Mod}_{deontic}$  and  $\text{Mod}_{dynamic} \rightarrow$  below Tense and Aspect
- Epistemic modals  $\Rightarrow$   $\text{Mod}_{epistemic} \rightarrow$  above Tense and Aspect

(48)



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