Realis and Irrealis Modality in Daakie (Ambrym, Vanuatu)

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In this talk I will present the system of modality marking in Daakie, spoken on Ambrym, based on extensive field work since 2009. Daakie has a five-way distinction that can be used to express both temporal and modal notions. In addition to a realis marker there is a potentialis marker for things that are expected to happen, a distal marker for either temporally or modally remote events (as in counterfactuals), a regular negation and a dependent negation. I will describe the use of these markers in main and dependend clauses, where it expresses, among other things, a factivity distinction. And I will sketch a theory that captures both its modal and temporal uses.

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1. Introduction

1.1 Basic information

The language Daakie

- a "Melanesian" language (Austronesian, Oceanic branch, Central/Eastern Oceanic, Southern Oceanic linkage, Nuclear Southern Oceanic linkage, central Vanuatu linkage), also known as "Port Vato" (the label in *Ethnologue*), the name of a village where it is spoken.
- spoken by probably less than 1000 speakers in the South of the volcanic island of Ambrym; closely related to the neighbouring languages Daakaka, Dalkalaen, North Ambrym; more distantly related to Southwest Ambrym (settled by inhabitants of Paama).

Data collection:

- 2008 – 2013: VolkswagenStiftung DoBeS project on Languages of Southwest Ambrym, 9 months of field work, 8 hours transcriptions, written stories, translations
- 2016 – 2019: DFG, project on tense, aspect and modality in Melanesian languages (both with Kilu von Prince, Berlin)

Previous work on West Ambrym languages:

- Paton, W. F. 1951 (1971). *Ambrym (Lonwolwol) Grammar.* Canberra: Australian National University.
- von Prince, Kilu. 2015. *A grammar of Daakaka*. Mouton Grammar Library 67. Berlin: Mouton de Gruyter.

1.2 Example sentence

Example sentence, for illustration of linguistic features, with rendering in Bislama.

(1) *nare-doo ki-yee* ***kye-m*** *loko van lon too* ***kye-p*** *sogóó a-yee we do*
child-1+2.DU DEF-3PC **3PC-RE** walk go in garden **3PC-POT** take.TR CL2-3PC fruit.TR lichi
'Our children went to the garden to take their lichi fruits' (elicited)
'Pikinini blong tufala oli wokbaot gogo long garen blong tekem nandao blong olgeta'

- Exclusive / Inclusive distinction (1 vs. 1+2)
- Singular, Dual, Paucal, Plural (SI, DU, PC, PL)
- Subject agreement (person+number)
- Possessed nouns, possessive noun classes (e.g. CL2: edible, animals), cf. Franjieh 2012
- transitive nouns, e.g. *wee* 'fruit', *we* 'fruit of', *we do* 'lichi fruits', *we-re* 'its fruits'
- verbs with numeral requirements of their arguments, e.g. *idi* 'take one', *sogóó* 'take many'
- Reduplication to express pluractionality
- Serial verb construction, e.g. *loko van* 'walk go'
- Categorial distinction between intransitive and transitive (TR) verbs (often marked by *-ne*)
- Modal marking, e.g. realis (RE), potentialis (POT) – this is the topic of this talk.

1.3 The system of modal markers:

- Every finite clause has a modal marker
- Combination subject marker + modal marker,
  null subject marker with homorganic vowel / consonant for 3rd person singular
- Inventory of modality markers, illustrated with three forms:

Modality	3rd Plural	1+ 2ndPlural	∅ (3rd Singular)
Realis	*la-m*	*da-m*	*mwe, me, mwi, mu, ma, mo*
Potentialis	*la-p*	*da-p*	*bwe, be, bwi, bu, ba, bo*
Realis Negation	*la-re*	*da-re*	*tere*
N, dependent negation	*la-n*	*da-n*	*ne, ni, no*
Distal	*la-t*	*da-t*	*te, ti, to*

- Basic distinction: **Realis** vs. Irrealis (aka Actualis vs. **Potentialis**), *m* and *b* (*p* in codas)
- Temporal meaning: Nonpast vs. Future, but better characterized as Event having taking place vs. Event envisioned / imagined (cf. Lichtenberk 1983 on Manam, Roberts 1990 on Amele)
- For typological discussions and semantic correlations of the realis / irrealis distinction cf. J.R. Elliott 2002, de Haan 2012

2. The Uses of Realis and its Negation

2.1 Realis in non-embedded clauses

Ongoing events and states:

(2) *Obwet an vu* ***mi*** *myuu* ***mo*** *do*
taro CL2-3S introduced RE grow RE slow
'The Fiji taro is growing slow', speaker points at taro plant (Jemis2.054)

Past events and states:

(3) *Meerin na-**m** mee o-ke-lé na-**m** lehe*
long.time.ago 1S-RE come LOC-CP-PROX 1S-RE look
'Long time ago I came, I looked', narrative (Bong2.027)

Generic statements:

(4) *ko-**m** ko-ot **mo**-nok ko-**m** ta=kuu~kuu yee **mwi** ti~tisii*
2S-RE clear-grounds RE-finish 2S-RE cut.out-REDUP tree RE fall-REDUP
'you clear the grounds, you cut out the trees, they fall down' (Jemis2.008)
(Advice how to make a garden)

Fictional worlds:

(5) ***mwe** pwet **mwe** selaa wili tali bye-n*
RE PROG RE put.on skin-TR body-TR body-3S
'He was putting (used to put) on the skin of the body of (another) man' (Bong2.012)

2.2 Realis in embedded clauses

Complement of factive propositional attitude verbs, with complementizer *ke*

(6) *mo **longane** **ke** timaleh kiye **mwe** pwet **mo** sóró*
RE **hear** **CP.RE** child DEF.3S **RE** PROG **RE** talk
'He **heard** that the child was talking' (Jemis3.039)

(7) *kolo-m **lehe** **ke** m-aloo em **mwe** sanga ten*
3DU-RE see CP.RE CL3-3DU house RE bad very
'The two **saw** that there house was very bad.' (Bong4.049)

(8) *kolo-re **kiibele** **ke** kolo-**m** du taali lii=byak kiye*
3DU-RE.NEG know CP.RE 3DU-RE stay other.TR tree=nambanga DEF.3SG
'The two did not **know** that the two were staying at the opposite sides of the nambanga tree' (Ilson3.005)

Factive interpretation of dependent clause with matrix verb that does not require factivity:

(9) *mwe **deme** **ke** kiikyee **mwe** kie mane ke saa tyenem a-bwi biibyee*
RE **think** CP.RE snake RE say to CP.RE CL1-3PL home FUT-POT uninhabited
'He thought about that the snake told him that their home will be uninhabited' (Laisa041)

Reason clauses

(10) *na-m pwet hospital* ***byen*** ***ke*** *popat* ***mwe*** *te ye-k*
1SG-RE stay hospital because CP.RE pig RE cut leg-1SG
'I stayed in the hospital **because** the pig cut my leg.', personal story (Boa1.079)

(11) *a-na-p sipa* ***byen*** ***ke*** *dye-**m** mee dye-**m** go=bini tiri kevene*
FT-1SG-PT thank because CP.RE 1+2.PC-RE come 1+2.PC-RE do=finish IDEF ALL
'I will thank you **because** we came and finished everything today', wedding speech (Jemae.001)

Temporal clauses

(12) ***bili*** ***ke*** ***mwe*** *saakuu wili bye-n ke mwe sanga ye*
time CP.RE RE take.off skin.TR body-3SG CP.RE RE bad DEM
me mee me timaleh man soo mu wuo
RE come RE child male IDEF 3SG good
'**When** he took off the skin of his body that was bad he became a good-looking young man.', narrative (Bong2.022-4)

(13) ***bili*** ***ke*** *la-**m** seene meleh* ***me*** *van mo sók=tahe nane popat*
time CP.RE 3PL-RE throw food RE go RE take=again from pig
'**When** they threw food (into the pigs' pen) he took it away again from the pigs', narrative (PSak2.025)

Relative clauses (in realis main clauses)

(14) *em* ***ke*** *la-**m** du la-**m** mot=go~gone silii*
house CP.RE 3PL-RE PROG 3PL-RE straight=make~RED road
'house such that they are straightening roads' (= embassy) (Abel3.121)

2.3 Realis negation

Negation in realis contexts is expressed by its own modal marker *-re*, 3rd person singular *tere*).

(15) *Lalinda mane Langievot kolo-**re** wu~wuo mane koloo*
Lalinda with Langievot 3DU-NEG good with 3DU
'Lalinda and Langievot were **not** good to each other', oral history (Andri.005)

(16) *tuutuu Sande* ***tere*** *pwet mane ngyak doma*
Grandfather Sande NEG stay with 2SG today
'Grandfather Sunday does **not** stay with you today', public speech (Jemae.110)

(17) *vanten ngyee la-m téé=van, la-**re** lehe diri de-soo*
people 3PL 3PL-RE look=go 3PL-NEG see something NRE-IDF
'The people looked at it, they did **not** see anything', translation (Gavonvu.025)

Negation in embedded realis clause:

(18) ***byen*** ***tere*** *kiibele ke me e nar-en*
because NEG know CP.RE RE COP child-3SG
'**because** she does **not** know that it is her offspring ' , nature description (Abel2.037)

(19) *Taata a-bwe* ***kiibele*** *ke ngyo na-**re** Isao*
Father FUT-POT know CP.RE 1SG 1SG-NEG Esau
'Father will **know** that I am **not** Esau', translation (OT.353)

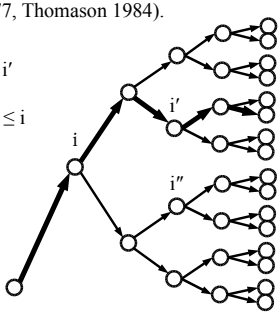
There are verbal predicates that express negative concepts that occur in realis modality:

(20) *masoló mwi* ***dyanga*** *oke-lé*
fish RE lack LOC-PROX
'There was no fish there', 'Fish were lacking there', trad. story (Aila2.022)

3. Modeling the meaning of realis and realis negation

3.1 Background assumptions

- Realis / Irrealis systems show an intertwining of modal and temporal reference
- Intertwining of modal and temporal reference in European languages:
  - Modal interpretation of future (Dowty 1977):
    John will cross the street – in all normal worlds, John will cross the street
  - Past tense and counterfactuality (Iatridou 2000):
    If the taxi had been a minute late, I would have missed the plane.
- Suggested here: A model of branching time (Dowty 1977, Thomason 1984).
  - a set I of **world-time indices**, e.g. i, i′
  - partially ordered by a **precedence** relation ≤, e.g. i ≤ i′
  - a linearly ordered subset of which is a **history**
    where i ~ i′: i, i′ share the same history, i.e. i ≤ i′ or i′ ≤ i
  - propositions are true/false at indices,
  - index c is the context index
    at which the sentence is uttered;
    sp(c), ad(c) are speaker, addressee of c



3.2 The Realis presupposition

The challenge:

- To give an interpretation of realis clauses compatible with their function as assertions of propositions that are true at the utterance index or at an index before,
- and their function as embedded clauses, where they indicate factivity (truth at utterance index or before)
- and the fact that negation is expressed as a modality on its own.

Proposed solution:

- Realis restricts a proposition φ to those indices where φ is in fact true at the utterance index or before -- it expresses a **factive presupposition**, the **realis presupposition.**
- If this restriction is not satisfied, the result is undefinedness.
- Nevertheless, realis-marked proposition can be informative;
  asserting them gives the information that they can be applied to the current situation
  (and hence the underlying proposition is true at the current or a past index).
- But a realis-marked proposition could not be negated, as this would result in undefinedness, hence negation must be expressed as a modality on its own
- Consequently, multiple negation is not possible in Daakie.

3.3 Interpretation of realis in detail

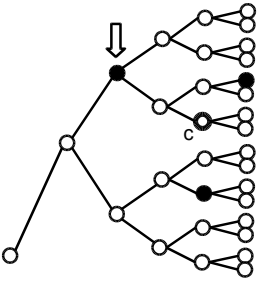
Example clause:

(22) *Enet mo koliet.*
Enet RE sing
'Enet sang', 'Enet is singing'

Proposed syntactic analysis:

(23) $[_{ForceP}$ ASSERT $[_{IP}$ *Enet* $[_{I'}$ $[_{I^0}$ *mo*$]$ $[_{vP}$ t_{Enet} *koliet*$]]]]$

- IP has modal marker in I^0, agrees with subject
- We assume movement of subject from vP to IP
- Agreement can be expressed between SpecIP and I^0
- ASSERT: relates proposition to the context



Meaning of $[_{vP}$ *Enet koliet*$]$, = φ

Meanings are functions from utterance contexts c:

(24) $[\![[_{vP}$ *Enet koliet*$]]\!](c) = \lambda i$[Enet sings at i] = φ

(25) $[\![[_{vP}$ *ngyak koliet*$]]\!](c) = \lambda i$[addressee(c) sings at i]

Example for φ (see graphics):

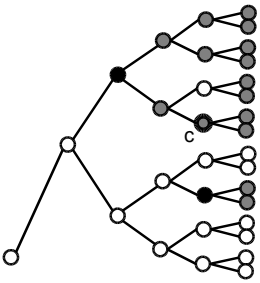
- Assume utterance context c,
- assume φ is the set of indices marked by black dots.
- Notice that *Enet mo koliet* should be true, as there is a black dot that is preceding c

Interpretation of realis clause, IP level:

(26) $[\![[_{IP}$ *Enet* $[_{I'}$ *mo* $[_{vP}$ t_{Enet} *koliet*$]]]]\!](c)$
$= [\![[_{I'}$ *mo* $[_{vP}$ *Enet koliet*$]]]\!](c)$, referential subject interpreted at trace position
$= [\![mo]\!](c)([\![[_{vP}$ *Enet koliet*$]]\!](c))$
$= RE(c)(\varphi)$, where $RE = \lambda c \lambda p \lambda i\ \exists \mathbf{i'{\leq}c[p(i')]}\ \exists i'[i' \leq i \wedge p(i')]]$
$= \lambda i.\ \exists \mathbf{i'{\leq}c[\varphi(i')]}\ \exists i'[i' \leq i \wedge \varphi(i')]$, where realis restriction is boldfaced.

Realis presupposition is boldfaced, to be interpreted as:

(27) $\lambda i.\ \boldsymbol{\pi}\ [\psi] = \lambda i[\psi]$, provided that π is true, else undefined.



Meaning of $[_{IP}$ *Enet mo koliet*$]$

Representation of our example:

- Notice that presupposition of Error: Reference source not found is satisfied
- Consequently, Error: Reference source not found applies truthfully to c.

Suitable terminology (cf. Reichenbach 1947)

- c: **utterance** index
- i: **reference** index
- i′: **event** index
(at which the elementary proposition is true)

3.4 Assertion of realis clauses

Assertion of a realis IP involves application of the IP to the utterance index, thus identifying the reference index sith the utterance indes.

Modeling in a theory of the change of a common ground C:

- C is a set of indices,
- the set of indices that interlocutors agree upon at the current state of conversation,
- each c ∈ C is a possible candidate for the utterance index
- for utterance situations, all c ∈ C determine the same speaker, addressee, etc.

(28) ⟦[$_{\text{ForceP}}$ ASSERT [$_{\text{IP}}$ *Enet mo koliet*]]⟧(C)
= ⟦ASSERT⟧(C)(⟦[$_{\text{IP}}$ *Enet mo koliet*]⟧)

with ⟦ASSERT⟧(C) = λr [{c∈C | r(c)(c) is true], where r: a relation between indices

= {c∈C | ⟦[$_{\text{IP}}$ *Enet* [$_{\text{I'}}$ *mo* [$_{\text{vP}}$ t$_{\text{Enet}}$ *koliet*]]]⟧(c)(c) is true }
= {c∈C | λi. ∃**i′≤c[φ(i′)]** ∃i′[i′≤i ∧ φ(i′)](c) is true}
= {c∈C | ∃i′[i′≤c ∧ φ(i′)] is true}

- C is restricted to those c for which it holds that φ is true at c or before c.
- Those c for which it holds that λi. ∃i′≤c[φ(i′)] ∃i′[i′≤i ∧ φ(i′)](c) is not defined are eliminated.
- Notice that the resulting common ground is enriched, the assertion of a realis clause is informative.

3.5 Interpretation of realis negation

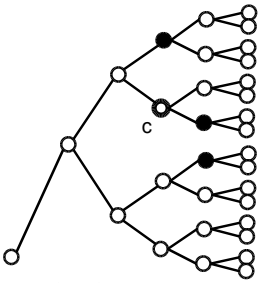
(29) *Enet tere koliet.*
Enet NEG sing
'Enet did not sing', 'Enet does not sing'

(30) ⟦[$_{\text{IP}}$ *Enet* [$_{\text{I'}}$ *tere* [$_{\text{vP}}$ t$_{\textit{Enet}}$ *koliet*]]]⟧(c)
= ⟦*tere*⟧(c)(⟦[$_{\text{vP}}$ *Enet koliet*]⟧(c))
= RENEG(c)(φ)
= λi. ¬∃**i′≤c[φ(i′)]**. ¬∃i′[i′≤i ∧ φ(i′)]

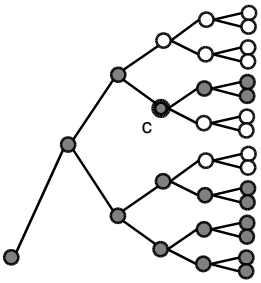
- Realis negation expresses an **antifactive presupposition:** the presupposition that φ is **not** true at or before c

Interpretation under assertion:

(31) ⟦[$_{\text{ForceP}}$ ASSERT [$_{\text{IP}}$ *Enet* [$_{\text{I'}}$ *tere* [$_{\text{vP}}$ t$_{\text{Enet}}$ *koliet*]]]]⟧(C)
= {c∈C | ⟦[$_{\text{IP}}$ *Enet* [$_{\text{I'}}$ *tere* [$_{\text{vP}}$ t$_{\text{Enet}}$ *koliet*]]]⟧(c)(c) is true]
= {c∈C | λi. ¬∃**i′≤c[φ(i′)]**. ¬∃i′[i′≤i ∧ φ(i′)](c) is true]
= {c∈C | ¬∃i′[i′≤c ∧ φ(i′)] is true}



Meaning of [$_{\text{vP}}$ *Enet koliet*], = φ



Meaning of [$_{\text{IP}}$ *Enet tere koliet*]

3.6 Interpretation of embedded realis clauses

Example clause:

(32) [$_{IP}$ *Lissing mwi* [$_{vP}$ $t_{Lissing}$ [$_{VP}$ *kiibele* [$_{CP}$ *ke* [$_{IP}$ *Enet mo koliet*]]]]]
'Lissing knows/knew that Enet is/was singing.'

Basic idea:

- *ke* is a modal operator with accessibility relation R,
  which is specified by embedding verb *kiibele* 'know' as epistemic
- Realis of embedded clause guarantees factivity, otherwise sentence necessarily false

Example derivation of embedded clause:

(33) ⟦[$_{CP}$ *ke* [$_{IP}$ *Enet mo koliet*]]⟧(c)
= ⟦*ke*⟧(c)(⟦[$_{IP}$ *Enet mo koliet*]⟧(c))

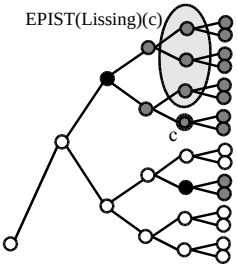
with ⟦*ke*⟧(c) = λpλiλR∀i′[R(i)(i′) → p(c)(i′)],
⟦[$_{IP}$ *Enet mo koliet*]⟧(c) = λi. ∃**i′≤c[φ(i′)]** ∃i′[i′≤i ∧ φ(i′)]

= λi λR∀i′[R(i)(i′) → λi. ∃**i′≤c[φ(i′)]** ∃i′[i′≤i ∧ φ(i′)](i′)]
= λi. ∃**i′≤c[φ(i′)]** λR∀i′[R(i)(i′) → ∃i″[i″≤i′ ∧ φ(i″)]]

- Projection of realis restriction, otherwise undefined.
- more precisely: whenever R(i)(i′) is true, then realis restriction must be true,
  otherwise the function is undefined.

Specification of modal relation by embedding verb:

(34) ⟦*kiibele*⟧(c) ≈ EPIST
where EPIST(x)(i)(i′):
i′ is epistemically accessible from i to x at c,
i.e. i′ is compatible with what x knows at i



In the case of factive *kiibele*, if i=c, then i′ must be epistemically accessible to the speaker of c as well.

Example derivation, assuming projection of realis presupposition

(35) ⟦[$_{VP}$ *kiibele* [$_{CP}$ *ke Enet mo koliet*]]⟧(c)
= ⟦*kiibele*⟧(c)(⟦[$_{CP}$ *ke Enet mo koliet*]⟧(c))
= λR̲λiλx[R̲(i)(EPIST(x))]
(λi. ∃**i′≤c[φ(i′)]** λR∀i′[R(i)(i′) → ∃i″[i″≤i′ ∧ φ(i″)]])]
= λi. ∃**i′≤c[φ(i′)]** λx ∀i′[EPIST(x)(i)(i′) → ∃i″[i″≤i′ ∧ φ(i″)]]

Specification of subject:

(36) ⟦[$_{vP}$ *Lissing* [$_{VP}$ *kiibele ke Enet mo koliet*]]⟧(c)
= λi. ∃**i′≤c[φ(i′)]** ∀i′[EPIST(Lissing)(i)(i′) → ∃i″[i″≤i′ ∧ φ(i″)]]

Embedding clause with realis presupposition of **embedded** and of **embedding** clause.

(37) ⟦[$_{IP}$ *Lissing* [*me* [$_{vP}$ $t_{Lissing}$ *kiibele ke Enet mo koliet*]]]⟧(c)
= λi. ∃**i′≤c[φ(i′)]**, **∀i′[EPIST(Lissing)(i)(i′) → ∃i″[i″≤i′ ∧ φ(i″)]]** .
∀i′[EPIST(Lissing)(i)(i′) → ∃i″[i″≤i′ ∧ φ(i″)]]

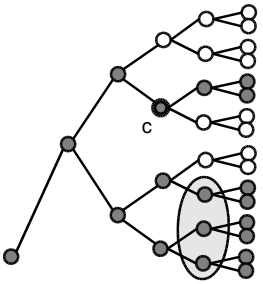
3.7 Interpretation of embedded realis negation clause

Example clause:

(38) [$_{IP}$ *Lissing mwi* [$_{vP}$ $t_{Lissing}$ [$_{VP}$ *kiibele* [$_{CP}$ *ke* [$_{IP}$ *Enet tere koliet*]]]]]
'Lissing knows/knew that Enet is/was not singing.'

Projection of antifactive presupposition of realis negation:

(39) ⟦[$_{CP}$ *ke* [$_{IP}$ *Enet tere koliet*]]⟧(c)
= ⟦*ke*⟧(c)(⟦[$_{IP}$ *Enet tere koliet*]⟧(c))
= λi λR∀i′[R(i)(i′) → ⟦[$_{IP}$ *Enet tere koliet*]⟧(c)(i′)]
= λi. ¬∃**i′≤c[φ(i′)]** λR∀i′[R(i)(i′) → ¬∃i″[i″≤i′ ∧ φ(i″)]]



Embedding in matrix predicate, subject Lissing:

(40) ⟦[$_{vP}$ $t_{Lissing}$ [$_{VP}$ *kiibele ke Enet tere koliet*]]⟧(c)
= λi. ¬∃**i′≤c[φ(i′)]** ∀i′[EPIST(Lissing)(i)(i′) → ¬∃i″[i″≤i′ ∧ φ(i″)]]

EPIST(Lissing)(c)

Expresses that

- Enet in fact did not sing (antifactive presupposition)
- all indices i′ that are epistemically accessible to Lissing exlude that Enet sings at or before i′

4. Potentialis

4.1 Potentialis in non-embedded clauses

Directive clauses

(21) *Ka-**p*** *van* *ka-**p*** *tapa=sene* *lii=tuwuo* *ko=rok*
2DU-PT go 2DU-PT clear.ground tree=bushnut PLACE=DIST
'You two, go clear the grounds at the bushnut tree over there.' command, (Jos1.026)

(22) *Ko-**p*** *sengane* *de-re* *na-p* *ane*
2SG-POT give IR-PRT 1SG-POT eat.TR
'Give me some of it so I will eat.', trad. story (Boa2.076)

Cohortative clauses:

(23) *La-m* *kie* *ka,* *da-**p*** *van* *tyenem*
3PL-RE say CP.NR 1+2.PL-PT go home
'They said, let's go home', trad. story (Bong1.046)

(24) *ngale* *do-**p*** *bá* *meleh* *byen* *soló*
then 1+2.DU-PT plant food because wedding.feast
'After, we two will plant food for the wedding feast.', trad. story (Aiben7.009)

Commissive clauses:

(25) *na-**p*** *senga-ne* *suburu* *mane* *s-ok* *tuutuu* *man*
1SG-PT give-TR mat to CL1-1SG grandparent male
'I will give (promise to give) the mat to my grandfather', trad. story (Aiben7.023)

(26) *la-m* *nungnung* *la-m* *kie* *ka* *e-e,* *keme-**p*** *ane* *basee* *de-re*
3PL-RE ask 3PL-RE say CP.NR yes 1PL-PT eat.TR bird IR-PRT
'They asked and said that, yes, let's eat some of the birds.', trad. story (Boa3.054)

4.2 *a* + Potentialis in non-embedded clauses: Future

In Daakie, a declarative future is typically expressed with the prefix *a* + potentialis.
In Daakaka, a combination of the complementizer *ka* + potentialis is used.
Presumably, *a* + potentialis originated from this combination by grammaticalization

(27) *vanten de-soo* ***a-bwe*** *mee bwi idi pija en toót*
person IR-IDF FT-PT come PT take picture PART probably
'Some man or other will come and/to take a picture of it, probably.'
description of garden (Jemis2.086)

(28) ***a-la-p*** *tibyek* ***a-la-p*** *ane ngye*
FT-3PL-PT try FUT-3PL-PT eat.TR 3SG
'They will try and eat him.', traditional story (IB2.064)

(29) *li=malek* ***a-na-p*** *kuo* ***a-na-p*** *tinyam*
at=night FT-1SG-PT run FT.1SG.PT hide
'At night, I will run and hide.' personal story, (Abel3.079)

4.3 Potentialis in embedded clauses

Non-factive complement clauses, with non-realis complementizer *ka*

(30) *na-m* ***longbini*** ***ka*** *na-p pune pun-en soo*
1SG-RE **want** CP.NR 1SG-PT tell tell-NOM IDF
'I want to tell a story' traditional story (Andri2.002)

(31) *mwe páne basee kingyee-ye mwe* ***neknak*** ***ka*** ***bu*** *du* ***ba*** *ane*
RE roast bird 3PC-PRX RE ready CP.NR PT PROG PT eat
'He roasted the birds and was **ready** to eat them.', traditional story (Boa3.039)

(32) *ngale la-m* ***kiibele*** ***ka*** *la-p kuo soo~soo*
then 3PL-RE **able** CP.NR 3SG-IR run one-one
'Then they were able to run away one by one.' traditional story (Adam1.022)

(33) *vanten mwe* ***kiibele*** ***ka*** ***bwi*** *ili bwe sógó dili-ri a-bo pwee*
person RE **able** CP.NR PT dig PT carry.many egg-PART FT-IR many
'A man knows how to dig and carry away many eggs of it', description (Abel2.015)

Non-factive temporal clauses:

(34) *a-na-p ane sówe* ***bili*** ***ka*** *ot* ***bi*** *mitmyet ?*
FT-1SG-PT eat what time CP.NR place PT dark
'What will I eat **when** it is dark?', traditional story (JoeAlvi.028)

(35) ***bili*** ***ka*** *la-p idi van la-p lingi*
time CP.NR 3PL-PT take go 3PL-PT put
'**When** they take her, they put her (at the place of the groom)',
description of custom (Lissing2.020)

5. Modeling the meaning of potentialis

5.1 Meaning of the potentialis

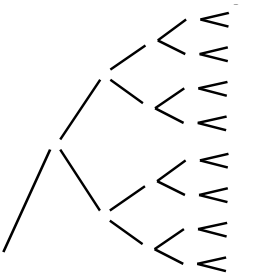
Suggested analysis:

- Potentialis expresses presupposition that the basic proposition can become true in the future of the reference index
- **It expresses the same information also as a presupposition**

(41) [$_{IP}$ *Enet* [$_{I'}$ *bo* [$_{vP}$ t$_{Enet}$ *koliet*]]]

Derivation of meaning, with highlighted potentialis presupposition

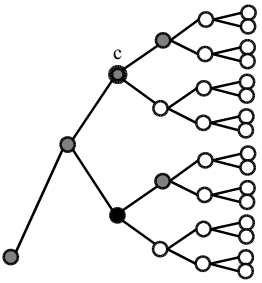
(42) ⟦[$_{IP}$ *Enet* [$_{I'}$ *bo* [$_{vP}$ t$_{Enet}$ *koliet*]]]⟧(c)
= ⟦*bo*⟧(c)(⟦[$_{vP}$ *Enet koliet*]⟧(c))
= POT(c)(φ),
with POT = λcλpλi. ∃**i″>i[p(i″)]** ∃i″[i<i″ ∧ p(i″)]
= λi. ∃**i″>i[φ(i″)]** ∃i″[i<i″ ∧ φ(i″)]



Meaning of ⟦[$_{vP}$ *Enet koliet*⟧(c), = φ

This meaning is too weak to be simply asserted:

(43) ⟦[$_{ForceP}$ ASSERT [$_{IP}$ *Enet bo koliet*]]⟧(c)
= ∃**i″>c[φ(i″)]**, ∃i″[c<i″ ∧ φ(i″)]
Asserts that φ is true in one
of the many future developments of c,
i.e. that φ may become true.



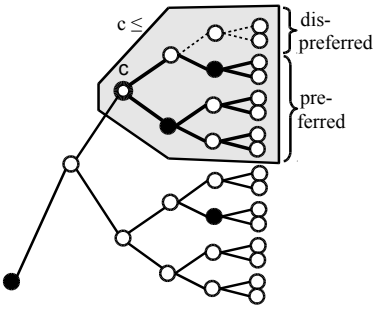
Meaning of ⟦[$_{IP}$ *Enet bo koliet*]⟧(c)

5.2 Interpretation of potentialis in directives, jussives and commissives

Basic idea: Those clauses are not assertions, but express a preference PREF

(44) [$_{ForceP}$ PREF [$_{IP}$ *Enet bo koliet*]]
'Enet should sing.'

Interpretation:
Speaker prefers the future indices
for which [$_{IP}$ *Enet bo koliet*] holds
over their complement.



(45) ⟦[$_{ForceP}$ PREF [$_{IP}$ *Enet bo koliet*]]⟧(c)
= ⟦PREF⟧(c)(⟦[$_{IP}$ *Enet bo koliet*]]⟧(c))

with ⟦PREF⟧(c)(p)
iff sp(c) prefers among the indices {i | c ≤ i}
those for which it holds: ∃i′[i~i′ ∧ p(i′)]

iff sp(c) prefers among the indices {i | c ≤ i}
those for which it holds: ∃i′[i~i′ ∧ λi.∃**i″>i[φ(i″)]**.∃i″[i<i″ ∧ φ(i″)](i′)]

iff sp(c) prefers among the indices {i | c ≤ i}
those for which it holds: ∃i′[i~i′ ∧ ∃i″[i′<i″ ∧ φ(i″)]]

- The potentialis presupposition does not contribute anything here
- For reasonable preferences, the proposition φ must become true at at least one index, but should not become true in all histories.

5.3 Interpretation of potentialis in embedded clauses

Example: Expression of ability

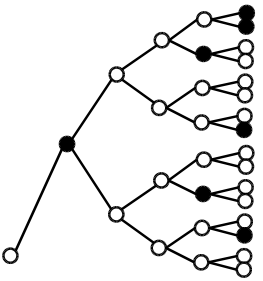
(46) [$_{IP}$ *Enet mwi* [$_{vP}$ t_{Enet} [$_{VP}$ *kiibele* [$_{CP}$ *ka* [$_{IP}$ *bo* [t_{Enet} *koliet*]]]]]]
'Enet is able to sing', 'Enet knows how to sing'

Non-realis complementizer *ka*
expresses a modal notion with accessibility relation R:

(47) ⟦[$_{CP}$ *ka* [$_{IP}$ *Enet bo koliet*]]⟧(c)
= ⟦*ka*⟧(c)(⟦[$_{IP}$ *Enet bo koliet*]⟧(c))

with ⟦*ka*⟧(c) = λpλiλR∀i′[R(i)(i′) → p(i′)]
⟦[$_{IP}$ *Enet bo koliet*]⟧(c) = λi. **∃i″>i[φ(i″)]** ∃i″[i<i″ ∧ φ(i″)]

= λiλR∀i′[R(i)(i′) → λi. **∃i″>i[φ(i″)]** ∃i″[i<i″ ∧ φ(i″)](i′)]
= λiλR∀i′[R(i)(i′) → ∃i″[i′<i″ ∧ φ(i″)]]]



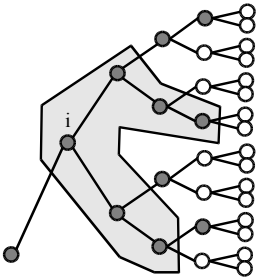
⟦[$_{vP}$ *Enet koliet*]⟧(c)

Accessibility relation supplied by embedding predicate,
here *kiibele* as ability, cf. *know that / how*

(48) ⟦*kiibele*$_{ep}$⟧(c) = λxλiλi′[ABLE(x)(i)(i′)]:
i′ is compatible with the abilities of x in i.

(49) ⟦[$_{IP}$ *Enet* [*mwi* [$_{vP}$ t_{Enet} [$_{VP}$ *kiibele ka bo* t_{Enet} *koliet*]]]]⟧(c)
= λi∀i′[ABLE(Enet)(i)(i′) → ∃i″[i′<i″ ∧ φ(i″)]]

➢ for all i′ that are compatible with the abilities of Enet at i,
Enet sings at at least one index after i′.



⟦[$_{IP}$ *Enet bo koliet*]⟧(c)
and a compatible ABLE(i)

5.4 Interpretation of future *a* + potentialis in non-embedded clauses

We assume that *a-* is related to complementizer,
cf. Daakaka *ka,* with a modal meaning

(50) a. *Enet a-bo koliet.*
b. [$_{CP}$ *Enet* [$_{C'}$ *a-* [$_{IP}$ t_{Enet} [$_{I'}$ *bo* [$_{vP}$ t_{Enet} *koliet*]]]]]

Alternatively, a meaning of *a-bo* could be given.

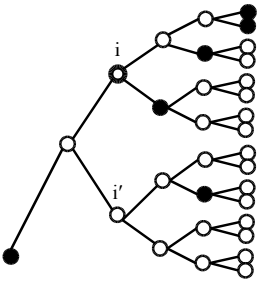
a specifies a default accessibility relation FUT:

(51) ⟦[$_{CP}$ *a-* [$_{IP}$ *Enet bo koliet*]]⟧(c)
= ⟦*a-*⟧(c)(⟦[$_{IP}$ *Enet bo koliet*]⟧(c))
= FUT(c)(⟦[$_{IP}$ *Enet bo koliet*]⟧(c))

with FUT(c)
= λpλi∀i′[i<i′ → ∃i″[i′~i″ ∧ i≤i″ ∧ p(i″)]]
and ⟦[$_{IP}$ *Enet bo koliet*]⟧(c)
= λi. **∃i‴>i[φ(i‴)]** ∃i‴[i<i‴ ∧ φ(i‴)]

= λi∀i′[i<i′ → ∃i″[i′~i″ ∧ i≤i″ ∧
λi. **∃i‴>i[φ(i‴)]** ∃i‴[i<i‴ ∧ φ(i‴)](i″)]]

= λi ∀i′[i<i′ → ∃i″[i′~i″ ∧ i≤i″ ∧ ∃i‴[i″<i‴ ∧ φ(i‴)]]]



black dots: ⟦[$_{vP}$ *Enet koliet*]⟧(c),
it holds that ⟦[$_{CP}$ *Enet abo koliet*]⟧(c)(i),
but not that ⟦[$_{CP}$ *Enet abo koliet*]⟧(c)(i′),
even though it does hold
that ⟦[$_{IP}$ *Enet bo koliet*]⟧(c)(i′)

➢ States that for all histories that go through i, φ is true at some point after i

➢ FUT may be further restricted to histories that are epistemically plausible for the speaker

5.5 Complementizers

Generalization: Realis complements use complementizer *ke*, others use *ka*.

Assume that *ke* comes itself with a realis restriction:

(52) ⟦*ke*⟧(c) = λR′λi. ∃**i″≤c[R(i)(i″)]** λR∀i′[R(i)(i′) → ∃i″[R′(i)(i″)]]

Use of *ke* in relative clauses and other cases of not-at-issue predications:

(53) *bwé ke Enet mo koliet-ne*
song CP.RE Enet RE sing-TR
'song that Enet is singing / sang'

Assume that the accessibility relation R in the complementizer is identity, by default.

(54) a. ⟦[$_{IP}$ *Enet* [$_{I'}$ *mo* [$_{vP}$ t_{Enet} *koliet-ne* t_x]]]⟧(c)
= λx λi. ∃**i″≤c[φ(x)(i″)]** λi′[i′≤i ∧ φ(x)(i′)], where φ(x)(i′): 'Enet sings x at i'

b. ⟦[$_{CP}$ *ke* [$_{IP}$ *Enet mo koliet-ne* t_x]]⟧(c)
= ⟦*ke*⟧(c)(⟦[$_{IP}$ *Enet mo koliet-ne* t_x]⟧(c))
= λx[λR′λiλR∀i′[R(i)(i′) → ∃i″[R′(x)(i′)(i″)]](⟦[$_{IP}$ *Enet mo koliet-ne* t_x]⟧(c))(λiλi′[i=i′])]
= λx[λi. ∃**i″≤c[φ(x)(i″)** ∀i′[i=i′ → ∃i″[i″≤i′ ∧ φ(x)(i″)]]
= λx[λi. ∃**i″≤c[φ(x)(i″)]** ∃i″[i″≤i ∧ φ(x)(i″)]]

c. ⟦[$_{NP}$ *bwé* [$_{CP}$ *ke* [$_{IP}$ *Enet mo koliet-ne* t_x]]]⟧(c)
= λiλx [⟦*bwé*⟧(c)(i)(x) ∧ ⟦[$_{CP}$ *ke Enet mo koliet-ne* t_x]⟧(c)(i)(x)]
= λiλx. ∃**i″≤c[φ(x)(i″)]** [x is a song in i ∧ ∃i″[i″≤i ∧ φ(x)(i″)]]

6. The N form

6.1 The use of the N form

We have treated realis negation above, cf. 3.5, as expressing a condition that the base clause is not true. Hence this negation could not be used for directives, commissives, jussives and in non-factive embedded clauses. For these cases, the marker N is used.

In negated non-realis clauses: Complementizer *saka* (*sa* + non-realis complementizer *ka*)

(36) ***sa=ka ne*** *lehe ngyo*
CP.NEG NRNEG see 1SG
'He will not find me.' traditional story (Abel3.017)

(37) ***sa=ka*** *ko-**n*** *lehe ngyo,* ***saka*** *na-**n*** *lehe ngyak*
CP.NEG 2SG-NRNEG see 1SG CP.NEG 1SG-NRNEG see 2SG
'Don't look at me, I don't look at you',
'You should not see mee, I should not see you.', direct speech in story (Ib3.101)

(38) ***sa=ka*** *ki-**n*** *tua kiye*
CP.NEG 2PL-NRNEG stone.TR 3SG.PRX
'Don't throw stones on this.' traditional story (Saki1.028)

(39) ***sa=ka*** *wel-em* ***ne*** *nek* ***ne*** *tiri kingyee ye*
CP.NEG skin-2SG NR.NEG afraid TR something 3PC DIST
'Don't be afraid of those things', personal story (Abel3.154)

(40) ***sa=ka*** *ko-**n*** *lehe lokuo de-soo*
CP.NEG 2SG-NRNEG see leaf NR-IDEF
'You could not see any leaves', description of volcano eruption (Aeven4.081)

In dependent clauses in negative contexts, including negation-implying verbs

(41) *na-**re*** ***kiibele*** *ka* *na-**n*** *teli*
1SG-RENEG know CP.NR 1SG-NRNEG walk
'I could not walk', personal story (Boa1.084)

(42) *a* ***tere*** ***longbini*** *ka* ***ne*** *kie*
and RENEG want CP.NR NRNEG say.TR
'and she did not want to say it', traditional story (Bong1.041)

(43) *tere* ***wese*** *ka* ***ne*** *poló* *vyoh*
RENEG can CP.NR NRNEG climb young.coconut
'he could not climb the young coconut', traditional story (Ib1.027)

wese only occurs in negated clauses

(44) *na-m* ***not-selaane*** *ka* ***na-n*** *gove-ne* *tiri* *de-soo*
1SG-RE think-wrongly CP.NR 1SG-NRNEG do-tr something NR-IDEF
'I was unable to do anything', personal story (Boa1.47)

(45) *wel-en* *me* ***nek*** *ka* ***ne*** *van* *lon* *too* *ki-ye*
skin-3S RE afraid CP.IR NRNEG go in garden DEF.PRX
'She was (too) afraid to go into the garden.' , translation, traditional story (Lovyee009)

Interestingly, the N form can also be used to express deontic necessity, although this is rare and increasingly replaced by the Bislama (ultimately English) loan *mas* 'must' with potentialis.

(46) *(ka)* *ko-**n*** *peten*
CR.RE 2SG-N tell.truth
'You must tell the truth' (elicited)

(47) *na-**p*** ***mas*** *kie* *mane* *sok* *boe* *ngyee*
1SG-POT must talk with CL1-1SG boy 3PL
'I must talk to my boys', description of garden (Jemis4.105)

6.2 Analysis of the N form

Basic idea: The N form is the negated potentialis[2] which comes with a **falsity presupposition**:

(55) $[\![[_{IP}\ Enet\ [ne\ [_{vP}\ t_{Enet}\ koliet]]]]\!](c)$
$= N(\varphi)$ $= \lambda i.\ \neg\exists i''[i < i'' \wedge \mathbf{\varphi(i'')}]\ \exists i''[i < i'' \wedge \varphi(i'')]$

Due to conflict content / presupposition this can never be asserted

6.3 Complementizer *saka*

Analysis for negative root clause complementizer *saka* o.k. as this expresses negative modality:

(56) $[\![[_{CP}\ saka\ [_{IP}\ Enet\ ne\ koliet]]]\!](c)$
$= [\![saka]\!](c)([\![[_{IP}\ Enet\ ne\ koliet]]\!](c))$

with $[\![saka]\!](c) = \lambda p\lambda i\forall i'[R(i)(i') \rightarrow \neg p(i')]$

$= \lambda p\lambda i\lambda R\forall i'[R(i)(i') \rightarrow \neg p(i')](\lambda i.\ \neg\exists i''[i < i'' \wedge \mathbf{\varphi(i'')}]\ \exists i''[i < i'' \wedge \varphi(i'')])$
$= \lambda i\lambda R\forall i'[R(i)(i') \rightarrow \neg\exists i''[i' < i'' \wedge \mathbf{\varphi(i'')}],\ \neg\exists i''[i' < i'' \wedge \varphi(i'')]]$
$= \lambda i\lambda R\forall i'[R(i)(i') \rightarrow \neg\exists i''[i' < i'' \wedge \varphi(i'')]]$

- Potentialis could not occur here, due to conflicting potentials truth presupposition.
- Default specification of R in the meaning of *saka* by a modal notion that does not entail truth in the past/present or future, e.g. by directives, commissives, jussives, ability.
- Example: future use, R(i)(i') iff $i \leq i'$

(57) $[\![[_{CP}\ saka\ [_{IP}\ Enet\ ne\ koliet]]]\!](c) = \lambda i\forall i'[i \leq i' \rightarrow \neg\ \exists i''[i' < i'' \wedge \varphi(i'')]]$

2 Thanks to Kilu von Prince for suggesting to put it in this way.

6.4 The N form under negated matrix verbs: Sketch

Example sentence:

(58) *Enet tere kiibele* [$_{CP}$ *ka ne koliet*] 'Enet could not sing.'

The Challenge:

- The negated matrix verb *tere kiibele* should motivate the N negation in complement clause
- But the N negation cannot express negation itself – we would end up with double negation.

Observation on NEG-raising predicates:

(59) *Bill doesn't think Sue is here.* ≈> *Bill thinks Sue is not here.*

Applied to case at hand:

(60) It is not the case that at all indices compatible with abilities of E. there is a future index at which she sings ≈> It is the case that at all indices compatible with abilities of E. there is no future index at which she sings.

Gajewski (2015) argues for a lexical presupposition of verbs like *think*:

(61) 'x thinks that p' presupposes 'x thinks that p' ∨ 'x thinks that ¬p',
hence from ¬'x thinks that p' it follows 'x thinks that ¬p'

I will argue:

(62) complementizer *ka* presupposes ∀i′[R(i)(i′) → p(i′)] ∨ ∀i′[R(i)(i′) → ¬p(i′)],
under ¬, the dependent negation N is licensed, as under complementizer *saka*.

6.5 The N form under negated matrix verbs: Execution

Application of complementizer ⟦*ka*⟧(c) to proposition ⟦[$_{IP}$ t$_{Enet}$ *ne koliet*]⟧(c):

(63) λiλR. ∀**i′[R(i)(i′)** → **λi.** ¬∃**i″[i < i″** ∧ **φ(i″)]** ∃**i″[i < i″** ∧ **φ(i″)](i′)]** ∨
∀**i′[R(i)(i′)** → **λi.**¬∃**i″[i < i″** ∧ **φ(i″)]** ¬ ∃**i″[i < i″** ∧ **φ(i″)](i′)]**
∀i′[R(i)(i′) → λi. ¬∃**i″[i < i″** ∧ **φ(i″)]** ∃i″[i < i″ ∧ φ(i″)](i′)]

Elimination of the first disjunct, as it can never be true (cf. Kleene's evaluation of disjunction), for simplification, elimination of presupposition of second disjunct.

(64) λiλR. ∀**i′[R(i)(i′)** → ¬ ∃**i″[i′ < i″** ∧ **φ(i″)]]**
∀i′[R(i)(i′) → λi. ¬∃**i″[i < i″** ∧ **φ(i″)]** ∃i″[i < i″ ∧ φ(i″)](i′)]

Specification of R by ABLE(Enet),
negation by realis negation *tere* (here only non-presuppositional part, λpλi ∀i‴[i‴≤i → ¬p(i‴)]):

(65) λi ∀i‴[i‴≤i → ¬ λi . ∀**i′[ABLE(Enet)(i)(i′)** → ¬ ∃**i″[i′ < i″** ∧ **φ(i″)]]**
∀i′[ABLE(Enet)(i)(i′) → λi. ¬∃**i″[i < i″** ∧ **φ(i″)]** ∃i″[i < i″ ∧ φ(i″)](i′)](i‴)]

= λi ∀i‴[i‴≤i → λi . ∀**i′[ABLE(Enet)(i)(i′)** → ¬ ∃**i″[i′ < i″** ∧ **φ(i″)]]**
¬∀i′[ABLE(Enet)(i)(i′) → λi. ¬∃**i″[i < i″** ∧ **φ(i″)]** ∃i″[i < i″ ∧ φ(i″)](i′)](i‴)]

= λi ∀i‴[i‴≤i → λi . ∀**i′[ABLE(Enet)(i)(i′)** → ¬ ∃**i″[i′ < i″** ∧ **φ(i″)]]**
∃i′[ABLE(Enet)(i)(i′) ∧ λi. ¬∃**i″[i < i″** ∧ **φ(i″)]** ¬∃i″[i < i″ ∧ φ(i″)](i′)](i‴)] no contradiction presupp./content!

Treating presupposition as conjunctions, eliminating redundant presupposition:

(66) λi ∀i‴[i‴≤i → ∀**i′[ABLE(Enet)(i‴)(i′)** → ¬ ∃**i″[i′ < i″** ∧ **φ(i″)]]**
∧ ∃i′[ABLE(Enet)(i)(i′) ∧ ¬∃i″[i‴ < i″ ∧ φ(i″)]]

6.6 The N form under negative-implying verbs

Example sentence:

(67) *Enet notselaane ka ne koliet.*
'Enet was unable to sing'

We assume that *notselaane* contains a negation.
This necessitates an analysis in which it takes the *ka*-clause as an argument.

ka clause, after elimination of first disjunct of presupposition, cf. (64)

(68) λiλR. ∀**i′[R(i)(i′) → ¬ ∃i″[i′ < i″ ∧ φ(i″)]]**
∀i′[R(i)(i′) → λi. ¬**∃i″[i < i″ ∧ φ(i″)]** ∃i″[i < i″ ∧ φ(i″)](i′)]

Meaning of *notselaane*

(69) ⟦*notselaane*⟧(c) = λRλxλi ¬ [R(i)(ABLE(x))]

After application to complement clause and subject:

(70) ⟦[$_{vP}$ *Enet* [*notselaane* [*ka ne koliet*]]]⟧(c)
= λi ∀**i′[ABLE(Enet)(i)(i′) → ¬ ∃i″[i′ < i″ ∧ φ(i″)]]**
¬ ∀i′[ABLE(Enet)(i)(i′) → λi. ¬**∃i″[i < i″ ∧ φ(i″)]** ∃i″[i < i″ ∧ φ(i″)](i′)]
= λi ∀**i′[ABLE(Enet)(i)(i′) → ¬ ∃i″[i′ < i″ ∧ φ(i″)]]**
∃i′[ABLE(Enet)(i)(i′) ∧ ¬ ∃i″[i′ < i″ ∧ φ(i″)]]

With the realis modal of the main clause, it is expressed that this holds at some index i‴ before i (in addition, we have realis presupposition).

In contrast to (66), this states that Enet was unable to sing at at least one index in the past.

7. The Distal form

7.1 The Distal in root clauses and adjunct clauses

Temporal scene setters in discourse, typically to a past event

(48) ***meerin*** *témat* *la-**t*** *pwee*
long.ago zombies 3PL-DST be.many
'Long ago, there were many zombies.' traditional story (Boa3.025)

Temporal scene setter within a sentence in adjunct clauses.

(49) *yaa* ***te*** *van* ***te*** *pwet* ***ti*** *piipili* *mwe* *kuoli-mee* *tyenem*
sun DST go DST PROG DST red RE return-come home
'**When** the sun became red (in the evining), he went home' (Ilson2.021)

(50) *malup* *ka* ***te*** *taala,* *leng* *mwe* *seene* *me* *mee* *mwe* *tangale* *dom,*
vulcano CP.NR DST erupt wind RE blow RE come RE reach yams
mi *myuu* *ma* *sanga*
RE grow RE bad
'**When** the vulcano erupts, the wind blows and comes and reaches the yams, and they grow badly', description of gardening (Jemis028-039)

The distal is often replaced by a relative construction with the head noun *bili* or Bislama *taem* 'time', cf. (12), (13). For example, (49) could be rendered alternatively as:

(51) *Bili* *ke* *yaa* *me* *van* *mwe* *pwet* *mi* *piipili,* *mwe* *kuoli-mee* *tyenem*
time CP.RE sun RE go RE PROG RE red RE return-come home
'When the sun became red, he returned home.'

The distal can be combined with the future marker:

(52) *a-da-**t*** *lehe* *palen* *a-da-**p*** *ane* *maneot*
FUT-1+2.PL-DST look.TR tomorrow FUT-1+2.PL-POT eat.TR in.the.morning
'When we see him tomorrow, we will eat him.', traditional story (Ib2.062)

7.2 The Distal in complement clauses

The distal occurs in complement clauses embedded by propositional attitude verbs where neither their truth nor their falsity is entailed.

(53) *temát* *ngyee* *mon* *la-m* *deme* *ka* ***te*** *met* *byen* *bo-n* *mwe* *sek.*
zombie 3PL too 3PL-RE think CP.NR DST dead because smell-3SG RE stink
'The zombies too thought that he was dead because he (his smell) was stinking.'
traditional story, in fact he was not dead (Saelas.026)

(54) *kye-m* *deme* *ka* ***te*** *we* *mee* *gon* *ngi-ye*
3PC-RE think CP.NR DIST fruit.TR dragonplum FOC FOC-PROX
'They thought that they were just dragonplum fruits', traditional story (Wili1.030)

(55) *ngyo* *na-**t*** *deme* *ka* *na-**t*** *popa* *timaleh* *ke-lé* ***te*** *s-ok*
1SG 1SG-DST think CP.NR 1SG-DST carry.on.head child NFOC-DIST DST CL1-1SG
a *ngyo* *na-m* *popa* *vot* *nge-lé*
but 1SG 1SG-RE carry.on.head stone FOC-DIST
'I, I think that I carry that child, that it is mine, but I (in fact) carry that stone!'
traditional story (Ib3.079)

(56) *mo* *gotó-ne* *ka* ***te*** *mese* *baabap* *ten*
RE make CP.NR DST sick very much
'He pretended to be very sick', translation traditional story (Aesop094)

7.3 Interpretation of the distal form

Basic idea:

- The distal is used if no grammatical relation to the utterance index is expressed.
- This also precludes anaphoric reference to reference times that are relevant for interpretation
- This allows the use of the distal to set a new temporal anchor (scene setter)
- As it neither comes with a realis restriction nor with a potentialis restriction, it is used when neither factivity nor realizability should be expressed, i.e. the content of thoughts that just might be false.

Interpretation proposed here:

(71) $[\![[_{IP}$ *Enet te koliet*$]]\!](c) = \lambda i\ .\ \mathbf{i \neq c}\ [\varphi(i)]$

- Event index is different from reference index (and utterance index)
- Cannot be directly asserted (applied to c)

7.4 Distal as temporal anchor

Example clause:

(72) *Enet te koliet, Lissing me pwet=malek*
Enet DST sing, Lissing RE stay=night
'When Enet sang, Lissing was asleep.'

Modeling of dynamic effect by assuming that main clause may have a temporal parameter.

(73) ⟦[$_{IP}$ *Lissing me pwetmalek*]⟧(c)

= λp λi. ∃**i′≤c[ψ(i′)]** ∃i′≤c[p(i) ∧ ψ(i′)]

Specification of temporal parameter by *te* clause

(74) ⟦[$_{IP}$ *Lissing me pwetmalek*]⟧(c)(⟦[$_{IP}$ *Enet te koliet*]⟧(c))

= λp λi. ∃**i′≤c[ψ(i′)]** ∃i′≤c[p(i′) ∧ ψ(i′)](λi. **i≠c** [φ(i′)])
= λi. ∃**i′≤c[ψ(i′)], i′≠c** ∃i′≤c[φ(i′) ∧ ψ(i′)]

Notice that event index i′ now can only be in the past of reference index i,
due to the distal temporal clause.

7.5 Distal in complement clauses

Use in embedded clauses:

(75) *Lissing mwe deme ka Enet te koliet*.
'Lissing thinks/was thinking that Enet is singing/was singing/will be singing' (?)

(76) ⟦[$_{CP}$ *ka* [$_{IP}$ *Enet te koliet*]]⟧(c)

= λiλR∀i′[R(i)(i′) → λi. **i≠c** [φ(i)](i′)]
= λiλR∀i′[R(i)(i′) → φ(i)]]

(77) ⟦[$_{vP}$ *Lissing deme* [$_{CP}$ *ka* [$_{IP}$ *Enet te koliet*]]]⟧(c)

= λiλR∀i′[EPIST(Lissing)(i)(i′) → φ(i)]

Notice:

- It is expressed that at all indices that may be the real index i according to Lissing's believe, Enet is singing (co-temporal interpretation).
- Nothing is indicated as to whether Lissing's believe is true or false.

8. Outlook: Conditional clauses

Potentialis conditionals, the condition is expected to happen (cf. indicative conditionals)

- use of potentialis in the if-clause (protasis) indicates that the condition can be realized,
- use of future in the main clause (apodosis) picks up the index introduced by protasis,
- future relative to that index, not relative to the utterance index.

(57) *(molo) ka **bo** longane dili-ri gon mo-nok,*
incubator.bird CP.NR POT hear.TR egg-DETR FOC RE-finish
***a-bwe** mee mwe pisih pán weren ke-ge mwe pwet mwe tivin weren*
FUT-POT come RE lay.egg under place CP.RE-that RE PROG RE bury.TR place
'When the incubator bird feels its eggs are finished, it will come and lay an egg under the place where it buries it.', description of incubator birds (Abel2.010-011)

Distal conditionals, the condition is not necessarily expected to happen

- Use of distal in protasis indicates that the condition is not necessarily supposed to happen

(58) *dye-**p** pun van, ka ko-**t** longane daa de-soo **to** minyeh,*
1+2PC-POT tell.stories continue CP.NR 2SG-DST hear words NR-IDEF DST different
***a**-ko-**p** kóókóógóló m-adyee em*
FUT-2SG-POT shut CL3-1+2PC house
'Let's say things, in case you hear some different words, then you should shut our houses (e.g. not accept these words as true)', funeral speech ()

Predictably, this includes counterfactuals.

(59) *Ko-**p** pyak ne tiri koloo lé, vih mane óó.*
2SG-POT choose TR something 3DU DIST banana with coconut
*Ko-**t** pyak soro ka tu wuo, **a**-ko-**p** idi popat.*
2SG-DST choose reach CP.NR DST good FUT-2SG-POT take pig
'Choose one of these two things, a banana or a coconut.
In case you choose good, then you will take (win) a pig.' (elicited)

(60) *Hap mát! Ka ko-**t** pyak ne voh, **a**-ko-**t** idi popat!*
Damn! CP.NR 2SG-DST choose TR banana FUT-2SG-DST take pig
'Damn! If you had chosen the banana, you would have won the pig!' (elicited)

Notice: The main clause does not use the potentialis form *a-ko-p*, but the distal form *a-ko-t*, as the potentialis form would entail that it is still possible for the addressee to get the pig.

9. Conclusion

Achieved:

- We have seen the essential distribution of the five modal markers of Daakie, Realis, Realis Negation, Potentialis, the N form (dependent negation), Distal
- I have outlined a proposal in which these modal markers come with certain restrictions, e.g. realis: true in the past or at present, potentialis: true at some point in a possible future
- The underlying structure assumed a combination of tense and modality (branching time)
- Complementizers *ke / ka* analyzed as strong modals, modal accessibility relation supplied by embedding predicates or the context.