Temporal and Modal Reference
in Daakie (Ambrym, Vanuatu)

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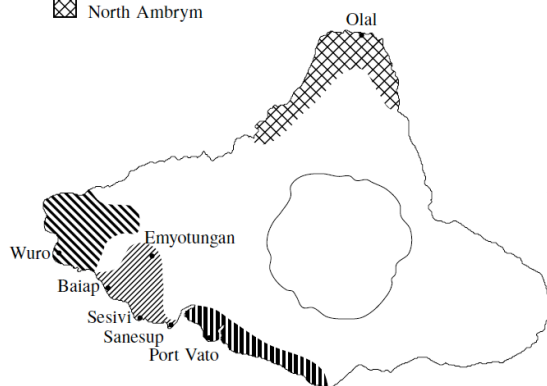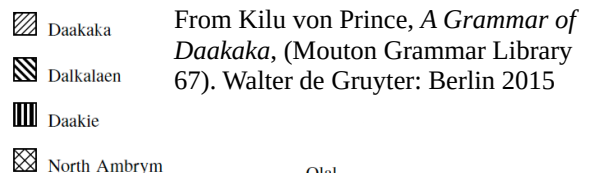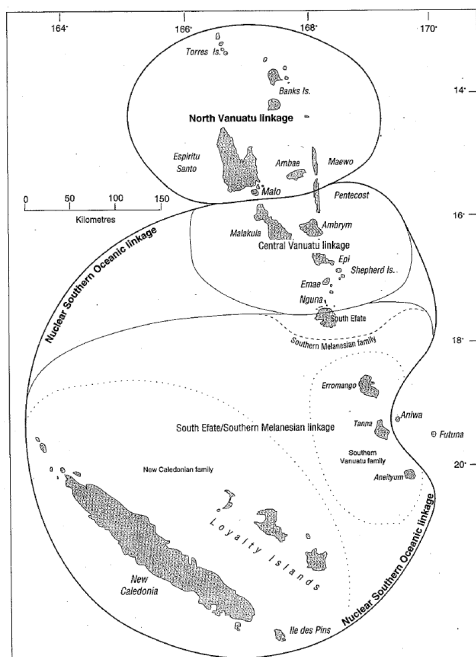
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The tense/modus/aspect marking in the Austronesian languages of Vanuatu is typically centered around a realis / irrealis distinction, basically distinguishing between events that are happening or have already happened, and others. In this talk I will present the system of modality marking in Daakie spoken on Ambrym, which 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.

1. Introduction

➢ Daakie is a "Melanesian" language (Austronesian, Oceanic branch, Central/Eastern Oceanic, Southern Oceanic linkage, Nuclear Southern Oceanic linkage, central Vanuatu linkage), also known as "Port Vato".

➢ It is spoken by probably less than 1000 speakers in South Ambrym; closely related to the neighbouring languages Daakaka, Dalkalaen, North Ambrym; not closely related to Southwest Ambrym (settled by inhabitants of Paama).

➢ Previous work on North and West Ambrym languages: Paton, W. F. 1971. *Ambrym (Lonwolwol) Grammar.* Canberra: Australian National University.

From Kilu von Prince, *A Grammar of Daakaka*, (Mouton Grammar Library 67). Walter de Gruyter: Berlin 2015

From John Lynch e.a., *The Oceanic Languages,* Ch. 5: Internal Subgroupings. London: Routledge.

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

(1)   *nare-doo ki-yee kye-m loko van lon too kye-p páne a-yee meleh*
      child-1+2.DU DEF-3PC 3PC-RE walk go in garden 3PC-POT roast.TR CL2-3PC food
      'Our children went to the garden to roast their food' (elicited)
      'Pikinini blong tufala oli wokbaot gogo long garen blong rusum kakae 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 do* 'lichi fruits', *we-re* 'its fruits'
   – Serial verb construction, tendency for paratactic clause chaining
   – Categorial distinction between intransitive and transitive verbs (often marked by *-ne*)
   – Modal marking, e.g. realis, potentialis – topic of this talk

Inventory of forms: Pronouns, agreement markers

Person	Singular	Plural	Dual	Paucal	Forms
1	*ngyo* *na-*	*kemem* *keme-*	*komoo* *komo-*	*kidyee,* *kidye-*	Pronoun Subject Marker
1+2		*et* *da-*	*adoo* *do-*	*adyee* *dye-*	Pronoun Subject Marker
2	*ngyak* *ko-*	*kimim* *ki-*	*kamoo* *ka-*	*kamdyee* *kamdye-*	Pronoun Subject Marker
3	*ngye* -	*ngyee* *la-*	*koloo* *kolo-*	*kilyee/kiyee* *kiye-*	Pronoun Subject Marker

Inventory of modality markers, illustrated with 3rd plural and 3rd singular.

Modality	3rd Plural	3rd Plural	∅ (3rd Singular)
Realis	*la-m*	*la-m*	*mwe, me, mwi, mu, ma, mo*
Potentialis	*la-p*	*la-p*	*bwe, be, bwi, bu, ba, bo*
Negation	*la-re*	*la-re*	*tere*
N, dependent negation	*la-n*	*la-n*	*ne, ni, no*
Distal	*la-t*	*la-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 and semantic correlations of the realis / irrealis distinction cf. J.R. Elliott 2002, de Haan 2012

Current task:

➤ Description of the distribution of modal markers in root clauses and dependent clauses
➤ Sketch of a semantic theory that captures their modal and temporal meaning
➤ Based on about 8 months of field work, 7 hours transcriptions, written stories, translations

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 ED-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)

(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)

(12) *s-ememdyee sipa=en   me vonok saane kamdyee **byen   ke**   ka-**m**   mee*
      CL1-1PC   thank=NOM RE move towards 2PC   because CP.RE 2DU-RE come

      *ka-**m**   ling=go~gone s-amdyee tuutuu*
      2DU-RE put=make~RED CL1-2PC   grandfather
      'Our thanks go towards you because you came and you finished burying your
      grandfather', funeral speech (5Days.004-5)

Temporal clauses

(13) ***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)

(14) ***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 again took it away from
      the pigs', narrative (PSak2.025)

Relative clauses

(15) *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

Realis negation is not separate from modality; it is a modality in its own right (marked by *-re*, 3rd
person singular *tere*).

(16) *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)

(17) *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)

(18) *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 and embedded realis clause:

(19) *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)

Negation in embedded realis clause:

(20) *Taata a-bwe   kiibele ke   ngyo **nare**   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:

(21) *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 its 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 $\leq$,
    e.g. $i \leq i'$
  – a linearly ordered subset of which is a **history**
    where $i \sim i'$: i, i' share the same history,
    i.e. $i \leq i'$ or $i' \leq i$
  – 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
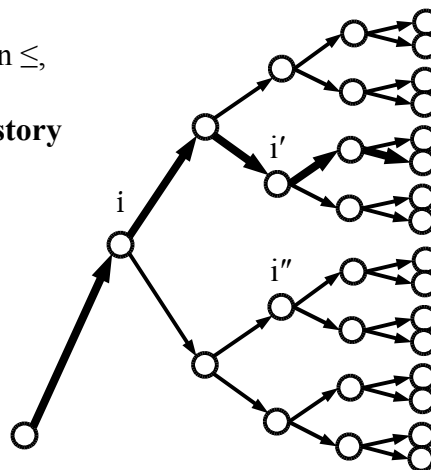
3.2   Essence of the proposal

The challenge:

➤ To give an interpretation of realis clauses compatible with their function as assertions
➤ and their function as embedded clauses, where they indicate factivity
➤ 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, the **realis restriction**.
➢ If this restriction is not satisfied, this results in undefinedness, similar to presuppositions.
➢ Nevertheless, realis-marked proposition can be informative; asserting them gives the information that they can be applied (and hence the underlying proposition is true).
➢ Realis-marked proposition could not be negated, as this would result in a contradiction, hence negation must be expressed as a modality on its own
(and consequently, multiple negation is impossible)

3.3 Interpretation of Realis

Example clause:

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

Proposed syntactic analysis:

(2) [$_{ForceP}$ ASSERT [$_{CP}$ ∃ [$_{IP}$ *Enet* [$_{I'}$ [$_{I°}$ *mo*] [$_{vP}$ t$_{Enet}$ *koliet*]]]]]

  – IP has modal marker in I°, agrees with subject
  – CP in non-embedded clauses: Existential closure ∃
  – Assert, simplified: application of proposition to context
  – We assume movement of subject from vP to IP
  – Agreement can be expressed between SpecIP and I°
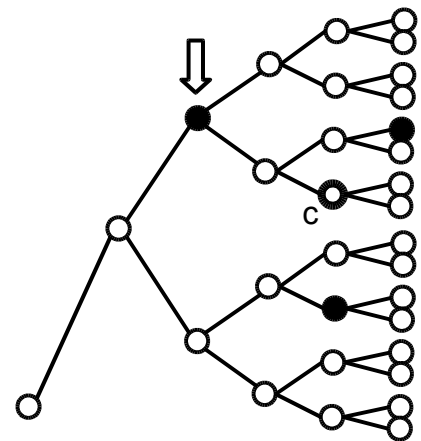
Meanings are functions from utterance contexts c:

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

(4) $[\![_{vP}$ *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

Meaning of [$_{vP}$ Enet koliet], = φ

Interpretation of realis clause, IP level:

(5) $[\![_{IP}$ *Enet* [$_{I'}$ *mo* [$_{vP}$ t$_{Enet}$ *koliet*]]]$]\!](c)$
    $= [\![_{I'}$ *mo* [$_{vP}$ *Enet koliet*]]$]\!](c)$ (undo trace binding)
    $= [\![mo]\!](c)([\![_{vP}$ *Enet koliet*$]\!](c))$
    $= RE(c)(\varphi)$,
      where $RE = \lambda c \lambda p \lambda i\, \exists \mathbf{i' \leq c[p(i')]}\, \lambda i'[i' \leq i \wedge p(i')]]$
    $= \lambda i.\, \exists \mathbf{i' \leq c[\varphi(i')]}\, \lambda i'[i' \leq i \wedge \varphi(i')]$,
      where realis restriction is boldfaced.

Suitable terminology (cf. Reichenbach 1947)

➢ c: utterance index
➢ i: reference index (to be identified with utterance index, see below)
➢ i′: event index (at which the elementary proposition is true)

Explanation:

➢ A relation between a reference index i and an utterance index i′
➢ restricted to reference indices i′ such that φ is true at or before the utterance index c
➢ that holds if the event index i′ is at or before the reference index i,
   and φ is true at the event index i′.

3.4 Interpretation of non-imbedded realis clauses as assertions

Interpretation of existential closure of event index in Spec-CP,
alternatively: relating the event index temporally
to the event index of the preceding clause,
as in narrative sequences (not represented here).

(6) $[\![_{CP} \exists \, [_{IP} \textit{Enet mo koliet}]]\!](c)$
      $= [\![\exists]\!](c)([\![_{IP} \textit{Enet mo koliet}]\!](c))$
      $= \exists(RE(c)(\varphi))$
         where $[\![\exists]\!](c) = \exists = \lambda R\lambda i\exists i'[R(i)(i')]$
      $= \lambda i\exists i'[RE(c)(\varphi)(i)(i')]$
      $= \lambda i \, . \, \exists \mathbf{i' \leq c[\boldsymbol{\varphi}(i')]} \, \exists i'[i' \leq i \wedge \varphi(i')]$
         notice: realis restriction
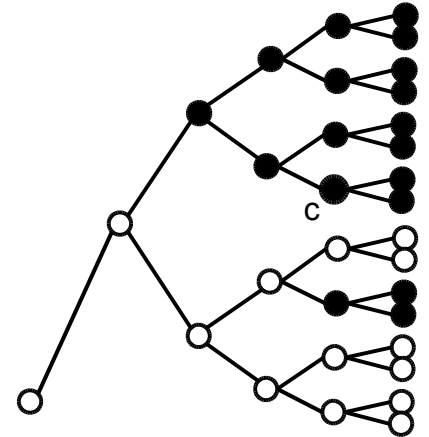
Meaning of $[_{CP} \exists \, \textit{Enet mo koliet}]$

Interpretation of ASSERT: Application to utterance index c
alternatively: speaker declares commitment that proposition is true for the utterance index

(7) $[\![_{ForceP} \text{ASSERT} \, [_{CP} \exists \, \textit{Enet mo koliet}]]\!](c)$
      $= [\![\text{ASSERT}]\!](c)([\![_{CP} \exists \, \textit{Enet mo koliet}]\!](c)$ where $[\![\text{ASSERT}]\!](c) = \lambda p[p(c)]$
      $= \exists i'[i' \leq c \wedge \varphi(i')]$

Notice:

➢ If $\exists i[i' \leq c \wedge \varphi(i')]$ is true, then realis restriction is satisfied
➢ If false, then realis restriction is not satisfied, $[\![_{CP} \exists \, [\textit{Enet mo koliet}]]\!]$ cannot be applied to c.
➢ Consequence: One cannot assert a realis clause at c that is false.
➢ But: The assertion of a realis clause is informative;
   only after ASSERT a claim is made about c.

Possible alternative analysis (cf. Krifka 2012, Proceedings of AFLA):

➢ Express the meaning of realis in such a way that it returns a false proposition,
   if the realis condition is not satisfied.
➢ Meaning of realis according to this analysis:

(8) $[\![_{IP} \textit{Enet mo koliet}]\!](c) = \lambda i \, \lambda i' \, [i' \leq i \wedge \varphi(i') \wedge \exists \mathbf{i' \leq c[\boldsymbol{\varphi}(i')]}]$

3.5 Interpretation of realis negation

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

(10) $[\![[_{IP} \textit{Enet} [_{I'} \textit{tere} [_{vP} t_{Enet} \textit{koliet}]]]]\!](c)$
   $= [\![\textit{tere}]\!](c)([\![[_{vP} \textit{Enet koliet}]\!](c))$
   $= \mathrm{RENEG}(c)(\varphi)$
   $= \lambda i. \neg\exists \mathbf{i'{\leq}c[\varphi(i')]} \; \lambda i'[i'{\leq}i \wedge \neg\varphi(i')]$

➢ Realis negation expresses the condition that φ is not true at or before c
➢ This could be restricted to a time interval under consideration

(11) $[\![[_{CP} \exists [_{IP} \textit{Enet} [_{I'} \textit{tere} [_{vP} t_{Enet} \textit{koliet}]]]]]\!](c)$
   $= \lambda i. \neg\exists \mathbf{i'{\leq}c[\varphi(i')]} \; \exists i'[i'{\leq}i \wedge \neg\varphi(i')]$

➢ Existential closure relatively weak, but
➢ strong meaning due to realis condition

(12) $[\![[_{ForceP} \mathrm{ASSERT} [_{CP} \exists [_{IP} \textit{Enet} [_{I'} \textit{tere} [_{vP} t_{Enet} \textit{koliet}]]]]]]\!](c)$
   $\neg\exists \mathbf{i'{\leq}c[\varphi(i')]} \wedge \exists i'[i'{\leq}c \wedge \neg\varphi(i')]$

➢ Realis negation condition expressed as conjunction with weak realis negation meaning

3.6 Interpretation of embedded realis clauses

Example clause:

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

Basic idea:

➢ Realis complementizer *ke* takes place of existential closure $\exists$
➢ *ke* is a modal operator with accessibility relation R,
   which is specified by embedding verb *kiibele* as epistemic
➢ Realis modality guarantees factivity, otherwise sentence necessarily false

Example derivation of embedded clause:

(14) $[\![[_{CP} \textit{ke} [_{IP} \textit{Enet mo koliet}]]]\!](c)$
   $= [\![\textit{ke}]\!](c)([\![[_{IP} \textit{Enet mo koliet}]\!](c))$
   $= \lambda i \, \lambda R \forall i'[R(i)(i') \rightarrow \exists i''[[\![[_{IP} \textit{Enet mo koliet}]\!](c)(i')(i'')]]$
   $= \lambda i. \exists \mathbf{i'{\leq}c[\varphi(i')]} \; \lambda R \forall i'[R(i)(i') \rightarrow \exists i''[i''{\leq}i' \wedge \varphi(i'')]]$
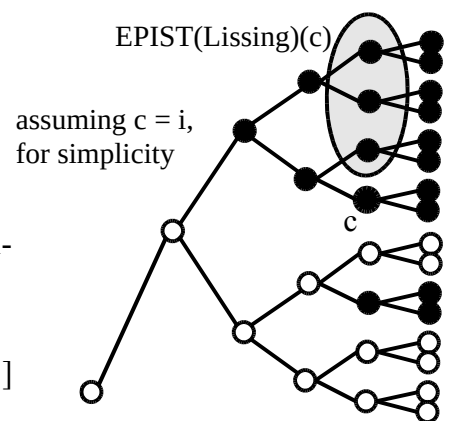
➢ Projection of realis restriction, otherwise consequent of $\rightarrow$ undefined.

Specification of modal relation by embedding verb:

(15) $[\![\textit{kiibele}]\!](c) = \mathrm{EPIST}$
   where $\mathrm{EPIST}(x)(i)(i')$:
   i′ is epistemically accessible from i to x at c,
   i.e. i′ is compatible with what x knows at i

Example derivation of embedding, assuming flexible type combination and projection of realis restriction

(16) $[\![[_{VP} \textit{kiibele} [_{CP} \textit{ke Enet mo koliet}]]]\!](c)$
   $= \lambda i. \exists \mathbf{i'{\leq}c[\varphi(i')]} \; \lambda x \forall i'[\mathrm{EPIST}(x)(i)(i') \rightarrow \exists i''[i''{\leq}i' \wedge \varphi(i'')]]$

EPIST(Lissing)(c)

assuming c = i,
for simplicity

c

Specification of subject:

(17)　$\llbracket [_{vP} \text{ t}_{Lissing} [_{VP} \textit{kiibele ke Enet mo koliet}]] \rrbracket (c)$
　　$= \lambda i. \exists \textbf{i}' \textbf{≤c[φ(i')]} \; \forall i'[\text{EPIST}(\text{Lissing})(i)(i') \rightarrow \exists i''[i'' \leq i' \land \varphi(i'')]]$

Specification of realis modality, existential closure, assertion of embedding clause, with realis condition of **embedded** and of <u>**embedding**</u> clause as conjunctions.

(18)　$\llbracket [_{ForceP} \text{ ASSERT } [_{CP} \exists [_{IP} \textit{Lissing} [_{vP} \text{ t}_{Lissing} \textit{kiibele ke Enet mo koliet}]]]] \rrbracket (c)$
　　$= \exists i[i \leq c \land \forall i'[\text{EPIST}(\text{Lissing})(i)(i') \rightarrow \exists i''[i'' \leq i' \land \varphi(i'')]]]$
　　　condition: $\exists \textbf{i}' \textbf{≤c[φ(i')]}]]$
　　　condition: <u>$\exists \textbf{i} \textbf{≤c} \forall \textbf{i}'[\textbf{EPIST}(\textbf{Lissing})(\textbf{i})(\textbf{i}') \rightarrow \exists \textbf{i}''[\textbf{i}'' \textbf{≤i}' \land \boldsymbol{\varphi}(\textbf{i}'')]]]$</u>

If realis condition of embedding clause is not satisfied, the embedded proposition is undefined for all indices, i.e. it cannot be epistemically accessible; this captures factivity of *kiibele*.

4.　Potentialis

4.1　Potentialis in non-embedded clauses

Directive clauses

(22)　*Ka-**p**　van　ka-**p**　tapasene　lii=tuwuo　korok*
　　2DU-PT　go　2DU-PT　clear.ground　tree=bushnut　DEM.DIST
　　'You two, go and clear the grounds around the bushnut tree over there.' (Jos1.026)

(23)　*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.' (Boa2.076)

Jussive clauses:

(24)　*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' (Bong1.046)

(25)　*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.' (Aiben7.009)

Commissive clauses:

(26)　*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)

(27)　*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

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.

(28) *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)

(29) ***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)

(30) *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*

(31) *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)

(32) *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)

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

(34) *vanten mwe **kiibele** ka   **bwi** ili bwe sógó   dili-ri   a-bo pwee*
 person   RE   know   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 of how to dig
 for namalao eggs (Abel2.015)

Non-factive temporal clauses:

(35) ***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)

(36) ***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 Basic assumptions

Suggested analysis (some parts to be motivated later):

➤ Potentialis expresses presupposition that the basic proposition can become true later
➤ Compatible with future marker *a*, related to complementizer *ka*, in future sentences
➤ This is compatible with a non-factive interpretation in embedded clauses
➤ but excludes an antifactive interpretation in embedded clauses.

Example clause:

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

Derivation of meaning, with highlighted potentialis restriction

(20) ⟦[$_{IP}$ *Enet* [$_{I'}$ *bo* [$_{vP}$ t$_{Enet}$ *koliet*]]]⟧(c)
    = ⟦*bo*⟧(c)(⟦[$_{vP}$ *Enet koliet*]⟧(c))
    = POT(c)(φ)
    = λi. ∃**i″≥i[φ(i″)]** λi′∃i″[i′~i″ ∧ i≤i″ ∧ φ(i″)]

➤ a relation between reference index i and index i′
➤ that holds if there is an event index i″ that is historically connected to i′ and follows i, such that φ is true at i″,
➤ with potentialis restriction that φ indeed is true at some index i″ after reference index i

Meaning too weak for simple assertion:

(21) ⟦[$_{ForceP}$ ASSERT [$_{CP}$ ∃ [$_{IP}$ *Enet bo koliet*]]]⟧(c)
    = ∃i′∃i″[i′~i″ ∧ c≤i″ ∧ φ(i″)]

➤ Asserts that φ is true in one of the many future developments of c, very weak meaning

5.2 Interpretation of *a* + potentialis in non-embedded clauses

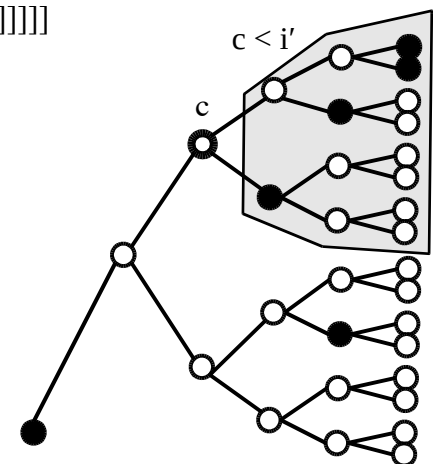We assume that *a-* is related to complementizer, cf. Daakaka *ka,* with a modal meaning

(22) [$_{ForceP}$ ASSERT [$_{CP}$ *Enet* [$_{C'}$ *a-* [$_{IP}$ t$_{Enet}$ [$_{I'}$ *bo* [$_{vP}$ t$_{Enet}$ *koliet*]]]]]]

Interpretation of futurate CP:

(23) ⟦[$_{CP}$ *a-* [$_{IP}$ *Enet bo koliet*]]⟧(c)
    = ⟦*a-*⟧(c)(⟦[$_{IP}$ *Enet bo koliet*]⟧(c))
    = FUT(c)(φ)
    = λi. ∃**i″>i[φ(i″)]** ∀i′[i<i′ → ∃i″[i′~i″ ∧ i≤i″ ∧ φ(i″)]]

Interpretation of Assertion:

(24) ⟦[$_{ForceP}$ ASSERT [$_{CP}$ *a-* [$_{IP}$ *Enet bo koliet*]]]⟧(c)
    = ⟦ASSERT⟧(c)(⟦[$_{CP}$ *a-* [$_{CP}$ *Enet bo koliet*]]⟧(c))
    = ∀i′[c<i′ → ∃i″[i′~i″ ∧ c≤i″ ∧ φ(i″)]] ∧ ∃**i″>c[φ(i″)]**

➤ States that in all histories that go through c, the sentence φ is true at some index after c
➤ If true, the potentialis restriction is guaranteed to be satisfied
➤ FUT may be restricted to those histories that are epistemically plausible for the speaker

5.3 Interpretation of potentialis in directives, jussives and commissives

Basic idea:

➢ Those closes are not assertions, but express a preference
➢ The appropriate illocutionary operators operate on the potentialis IP

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

Interpretation, cf. treatment of wishes in Heim 1992, here simplified

(26) ⟦[$_{\text{ForceP}}$ PREF [$_{\text{IP}}$ *Enet bo koliet*]]⟧(c)
      = ⟦PREF⟧(c)(⟦[$_{\text{IP}}$ *Enet bo koliet*]]⟧(c))
      = $\forall i \forall i'$[⟦*Enet bo koliet*⟧(c)(c)(i)
            $\wedge \neg$⟦*Enet bo koliet*⟧(c)(c)(i')
               → sp(c) prefers i over i' in c]
      = $\forall i \forall i'$[$\exists i''[i{\sim}i'' \wedge c{\leq}i'' \wedge \varphi(i'')]$
            $\wedge \neg\exists i''[i'{\sim}i'' \wedge c{\leq}i'' \wedge \varphi(i'')]$
               → sp(c) prefers i over i' in c]
      condition: **$\exists i''{>}c[\varphi(i'')]$**
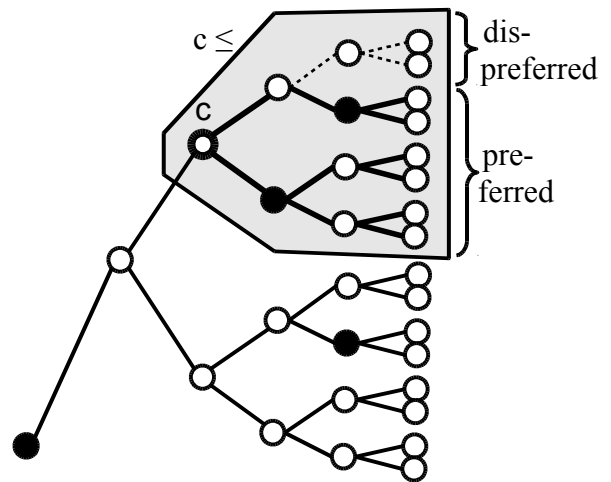
➢ The speaker in c has, in c, a preference
  of worlds i for which φ is realized in the future
  in all histories that run through i
  over worlds i' for which this is not the case
➢ As worlds i, i' before or equal to c
  do not differ in these properties,
  this necessarily expresses preferences for the future.

Notice:

➢ Potential condition satisfied: It must be possible that Enet sings at some time in the future; directives, jussives, commissives cannot be unrealistic
➢ Realis condition could not be applied, because then preferred and dispreferred histories could not be distinguished.

5.4 Interpretation of potentialis in embedded clauses

Basic idea:

➢ Potentialis does not come with a realis precondition,
  hence is preferably used when the realis precondition is not guaranteed to hold
➢ Embedded potentialis comes with the condition that it is possible that the proposition holds
➢ It expresses that the proposition φ holds with necessity with respect to a modal relation
  specified by the embedding operator.

Example: Expression of ability

(27) [$_{\text{IP}}$ *Enet mwi* [$_{\text{vP}}$ t$_{Enet}$ [$_{\text{VP}}$ *kiibele* [$_{\text{CP}}$ *ka* [$_{\text{IP}}$ *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:

(28) $[\![_{CP} ka [_{IP} Enet\ bo\ koliet]]\!](c)$
     $= [\![ka]\!](c)([\![_{IP} Enet\ bo\ koliet]\!](c))$
     $= \lambda i.\ \lambda R \forall i'[R(i)(i') \to [\![_{IP} Enet\ bo\ koliet]\!](c)(i)(i')]$
     $= \lambda i.\ \exists i''>i[\varphi(i'')]\ \lambda R \forall i'[R(i)(i') \to \exists i''[i'\sim i'' \wedge i \leq i'' \wedge \varphi(i'')]]$

As before, the accessibility relation is specified by the embedding predicate,
here: *kiibele,* ambiguous / underspecified between epistemic and ability modal,
similar English *know that / how*

(29) $[\![kiibele_{ep}]\!](c) = ABLE,$
     where $ABLE(x)(i)(i')$: i′ is a world that is compatible with the abilities of x in i.

(30) $[\![_{VP} kiibele [_{CP} ka\ bo\ t_{Enet} koliet]]\!](c)$
     $= \lambda i \lambda x [\![_{CP} ka\ bo\ t_{Enet} koliet]\!](c)(i)([\![kiibele]\!](c)(i)(x))$
     $= \lambda i.\ \exists i''>i[\varphi(i'')]\ \lambda x \forall i'[ABLE(x)(i)(i') \to \exists i''[i'\sim i'' \wedge i \leq i'' \wedge \varphi(i'')]]$

(31) $[\![_{ForceP} ASSERT [_{CP} \exists [_{IP} Enet [mwi [_{VP} t_{Enet} [_{VP} kiibele\ ka\ bo\ t_{Enet} koliet]]]]]]\!](c)$
     $= \exists i[i \leq c \wedge \forall i'[ABLE(Enet)(i)(i') \to \exists i''[i'\sim i'' \wedge i \leq i'' \wedge \varphi(i'')]]$
     condition: $\exists i''>c[\varphi(i'')]$

ABLE(c)

➢ There is an index i at or before the utterance index c
   such that for all i′ that are compatible
   with the ability of Enet at i,
   there is an i″ in the history of i′ after i
   at which Enet is singing.
➢ That is, to say that someone is able to sing
   means that one has shown singing behavior,
   or that one will show singing behavior in the future.
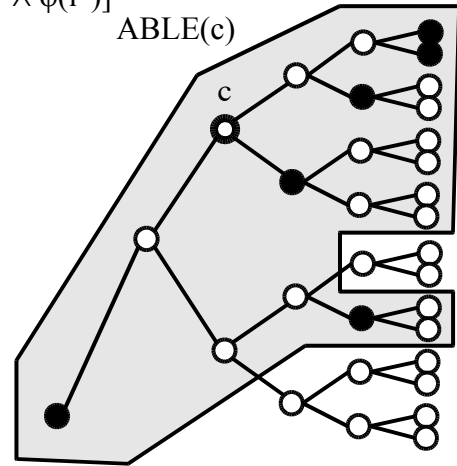
5.5 Complementizers

Formal difference between the two complementizers *ke* and *ka*:

➢ The realis complementizer *ke* expresses existential closure
➢ The non-realis comlementizer *ka*

(32) $[\![ke]\!](c) = \lambda R' \lambda i \lambda R \forall i'[R(i)(i') \to \exists i''[R'(i)(i'')]]$

(33) $[\![ka]\!](c) = \lambda R' \lambda i \lambda R \forall i'[R(i)(i') \to R'(i)(i')]$

We can stipulate in addition that *ke* comes itself with a realis restriction that expresses the same as the realis restriction of the realis IP.

(34) $[\![ke]\!](c) = \lambda R' \lambda i.\ \exists i'' \leq c[R(i)(i'')]\ (\lambda R \forall i'[R(i)(i') \to \exists i''[R'(i)(i'')]]$

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

(35) *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 meaning is specified by identity, by default.

(36) 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-assertives: Complementizer *saka*

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

(39) **saka**   *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)

In negated ability statements: complementizer *saka*

(40) **saka ko-*n***   *lehe lokuo de-soo*
   CP.NEG 2SG-NRNEG see   leaf   NR-IDEF
   'You could not see any leaves', description of vulcano 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)   *na-m*   ***not-selaane*** *ka*   ***na-n***   *gove-ne tiri*   *de-soo*
     1SG-RE think-wrong   CP.NR 1SG-NRNEG do-tr   something NR-IDEF
     'I wrongly thought that I could do something', personal story (Boa1.47)

(44)   *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'

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

(46)   *na-p*   ***mas*** *kie mane sok*   *boe ngyee*
     1SG-POT must talk to   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 comes with the restriction that the proposition φ is false at some index (event index i′ or, if this leads to a contradiction, the reference index i)
➢ but it expresses that the proposition φ is true at i′
➢ hence it is a proposition that, for every index where it is defined, is false at this index,
➢ hence a true proposition can only result when the proposition φ is negated,
➢ this expresses the restriction to negative contexts.

Resulting analyis for negative complementizer *saka*:

(37) $[[_{IP}$ *Enet* $[ne [_{vP} t_{Enet}$ *koliet*$]]]](c)$
     $= \lambda i \lambda i'.\neg\boldsymbol{\phi(i')}[\phi(i')]$ or, as a second option, $\lambda i.\neg\boldsymbol{\phi(i)} \lambda i'[i'{\sim}i \wedge \phi(i')]$

Analysis for negative complementizer:

(38)   *Saka Enet ne koliet.*
     'Enet should not sing.'

(39) $[[_{CP}$ *saka* $[_{IP}$ *Enet ne koliet*$]]](c)$
     $= [[saka]](c)([[_{IP}$ *Enet ne koliet*$]](c))$
     $= \lambda R' \lambda i \lambda R \forall i'[R(i)(i') \rightarrow \neg R'(i)(i')](\lambda i \lambda i'. \neg\boldsymbol{\phi(i')} [\phi(i')])$
     $= \lambda i \lambda R \forall i'[R(i)(i') \rightarrow \neg\boldsymbol{\phi(i')} \wedge \neg[\phi(i')]]$

➢ No realis or potentialis requirement!
➢ Compositional analysis of *saka* as *sa* (negated modality) and *ka* (non-realis complementizer) is possible.
➢ Default specification of R by a modal notion that does not entail truth in the past/present (realis) or future (irrealis), e.g. by directives, commissives, jussives, ability.

➤ Sentence can be uttered if Enet is singing right now, no restriction on reference index i.

Analysis for negative-implying verbs

(40) *Lissing tere kiibele ka Enet ne koliet*
      'Lissing does not know that Enet sings.'

(41) a. ⟦[$_{IP}$ *Enet ne koliet*]⟧
          second option: λi. ¬**φ(i)** λi′ [i′~i ∧ φ(i′)]

      b. ⟦[$_{CP}$ *ka* [$_{IP}$ *Enet ne koliet*]]⟧(c)
          = λi. ¬**φ(i)** λR ∀i′[R(i)(i′) → φ(i′)]

      c. ⟦[$_{vP}$ t$_{Lissing}$ *kiibele* [$_{CP}$ *ka Enet ne koliet*]]⟧(c)
          = λi. ¬**φ(i)** ∀i′ [EPIST(Lissing)(i)(i′) → φ(i′)]

      d. ⟦[$_{IP}$ *Lissing tere* t$_{Lissing}$ *kiibele* [$_{CP}$ *ka Enet ne koliet*]]⟧(c)
          = λiλi′.¬**φ(i′)** [i′≤i ∧ ∀i″[EPIST(Lissing)(i′)(i″) → φ(i″)]]
            (+ realis negation condition for main clause)

      e. ⟦[$_{ForceP}$ ASSERT ∃ [$_{IP}$ *Lissing tere kiibele ka Enet ne koliet*]]⟧(c)
          = ∃i′.¬**φ(i′)** ∧ i′≤c ∧ ∀i″[EPIST(Lissing)(i′)(i″) → φ(i″)]

➤ True for an event index i′ of the main clause
   at which it holds that Enet in fact did not sing,
   but at which Lissing believes that Enet sings.
➤ Similar for negative-implying verbs, like *notselaane* 'think wrongly'
   which define an accessibility relation λpλxλi.¬p(i)λi′[EPIST(x)(i)(i′) → ¬p(i′)]

Rare use in deontic modals:

➤ Deontic modals D(φ) express at an index i where ¬φ(i)
   that indices i′ are preferred at which φ(i′).

(42) *You are not telling the truth, you should tell the truth!*

7. The Distal form

7.1 Distribution of the distal form

Temporal scene setters in discourse, typically to a past event

(47) **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

(48) *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)

(49) *na-m   muot van, na-**t**   soro tan   na-m   soro tan   lan popat*
      1SG-RE fall   go   1SG-DST reach ground 1SG-RE reach ground at   pig
      'I was falling, when I reached the ground I reached the ground on top of the pig'
      (Boa1.033)

(50) *Ko-**t*** *lehe ka* ***te*** *pa,* *babae* *sa-m* *vot* *gon*
     2SG-DST see   CP.NR DST carry.fruit FUT (Bislama) Cl1-2SG money FOC
     'When you see that it carries fruit, then (it is) your money.' (Maeka1.146)

(51) *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)

This function can be combined with 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)

In this function, the distal is often replaced by a relative construction with the head noun *bili* or
Bislama *taem* 'time', cf. (13), (14). For example, (48) could be rendered alternatively as:

(53) *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 occurs in embedded sentences where neither their truth nor their falsity is entailed (i.e.
that are neither factive nor antifactive).

(54) *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)

(55) *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)

(56) *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)

(57) *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)

7.2 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 (not captured in the current model)
- 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 might be false.

Interpretation proposed here:

- The event index cannot be the utterance index,
- the reference index is not related to the event index

Example clause:

(43) ⟦[$_{IP}$ *Enet* [$_{I'}$ *te* [$_{vP}$ t$_{Enet}$ *koliet*]]]⟧(c)
      = λiλi′.**i′≠c** [φ(i′)]

(44) ⟦[$_{ForceP}$ ASSERT [$_{CP}$ ∃ [$_{IP}$ *Enet te koliet*]]]⟧(c)
      = ∃i′. **i′≠c** [φ(i′)]

- It is claimed Enet sings at some time or other.
- No anchoring of the event index, modally or temporally
- The new event index i′ becomes reference index for the following clause (not modeled here).

Use in embedded clauses:

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

(46) ⟦[$_{CP}$ *ka* [$_{IP}$ *Enet te koliet*]]⟧(c)
      = λi∀R∀i′[R(i)(i′) → φ(i′)]

(47) ⟦[$_{IP}$ *Lissing* [$_{I'}$ *mwe* [$_{vP}$ t$_{Lissing}$ *deme* [$_{CP}$ *ke* [*Enet te koliet*]]]]]⟧(c)
      λi λi′ [i′≤i ∧ ∀i″[EPIST(c)(Lissing)(i′)(i″) → φ(i″)]]

- For all indices i″ that are epistemically accessible for Lissing at i′, (i.e. that are candidates for the index i′, according to Lissing's believes), Enet sings at i″
- No implication that Enet in fact sang or is singing, or that she might sing in the future.

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.

(58) *(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

(59) *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.

(60) *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)

(61) *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)
➤ Pragmatic competition between these markers (choose the strongest applicable one)
determines their distribution in root clauses and dependent clauses.
➤ Complementizers *ke / ka* analyzed as strong modals, modal accessibility relation supplied by
embedding predicates or the context.

Not achieved yet, among other things:

➤ Anaphoric reference, e.g. introduction of reference times with distal markers
➤ Phenomenon of reverting to realis marker as the most frequent marker in serial verb constructions etc., after an initial non-realis marker.
➤ Modality in multiply embedded clauses ('Andri knows that Lissing things that Enet sings')
➤ sensitivity to modal contexts of other expressions, e.g. indefinite marker (*soo* vs. *desoo*).