Paradigm-induced implicatures of TAM markers: The case of the Daakaka distal[1]

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Abstract. The distal TAM-marker in the Oceanic language Daakaka (Vanuatu) refers to events in the actual past as well as the counterfactual past, present and future. It comes with a cessation interpretation similar to English simple past statives and similar to markers of (discontinuous) past in other languages. For English and Tlingit, it has been argued that this cessation interpretation is a pragmatic implicature rather than part of the lexical semantics. I will argue that in Daakaka, too, the cessation interpretation is the result of an implicature, but that this can only be understood if the modal dimensions of the TAM markers are taken into consideration.

Keywords: Oceanic, TAM, tense, modality, implicatures, cessation, discontinuity

1. Introduction

Discontinuous past markers have been described for a wide variety of languages from diverse families and areas. Plungian and van der Auwera (2006: 317) therefore suggest that "[d]iscontinuous past can thus be analyzed as a special cross-linguistically valid type of past tense marking." Plungian and van der Auwera (2006) assume that the discontinuity interpretation can be a lexical feature of past markers and that discontinuous past is therefore a distinct category from regular past.

However, Cable (2016) suggests that the discontinuity interpretation of past markers in some languages is not a built-in part of their lexical semantics, but rather the result of pragmatic reasoning, similar to Altshuler and Schwarzschild (2012)'s analysis of cessation implicatures in English simple past.

The Daakaka distal adds an interesting complication to this picture. Although its discontinuity interpretation can also be shown to be context-dependent and thus non-lexical, it defies the typological generalizations by Cable (2016), who suggests that discontinuous past markers occur exclusively in languages with optional tense marking.[2]

In Daakaka however, TAM marking of finite clauses is obligatory. While we will see that this observation itself is not a great obstacle to applying Cable (2016)'s analysis, I will discuss several aspects of his theoretical approach that are problematic and at odds with established assumptions.

[2] Note that this is not fully supported by Plungian and van der Auwera (2006). They cite Washo and systems with a binary remoteness distinction or a pluperfect as possible counterexamples.

I will argue that the discontinuity implicature of the Daakaka distal can only be understood if we consider its modal as well as its temporal meaning.

2. Background

Daakaka is an Oceanic language of Vanuatu, spoken by about one thousand people on the island of Ambrym and the small diaspora in Vanuatu's cities Port Vila and Luganville. Its basic word order is SVO and it has a fairly strictly developed system of lexical classes (von Prince, 2015). All data come from my own fieldwork. The bulk of the data comes from the corpus I have created during a language documentation project between 2009 and 2012. Referenced examples refer back to the corpus, which is published in The Language Archives (TLA) and which I constantly work on to make it more consistent and more accessible.

3. TAM markers in Daakaka

Finite clauses in Daakaka have to contain a TAM marker. They typically cliticize to the preceding subject agreement marker or to the subsequent verb. With third-person singular subjects and non-human subjects, there is no subject agreement marker and the TAM marker will be realized as a monosyllabic word with a vowel determined by the subsequent verb instead. The following two examples show the realis marker:

(1) *waawu,   na=**m**   pyane swa kemyas kyun.*
    grandparent 1SG=REAL roast   one only   just
    "grandmother, I have only roasted one."[3] (5401)

(2) *ulilir **mu**   du-ru   yen bwili   wye*
    prawn REAL REDUP-stay in   hole.of water
    "Prawns live in fresh water ponds" (1775)

The TAM markers form a rather close-knit unit with the subject-agreement marker and the verb. The only thing that can interfere between them are auxiliaries and some aspectual particles. The main temporal-modal contrast of the system are instantiated by the markers in table 1.

In addition, there are two other markers, which play a less important role in the context of this article:

- *too* is used exclusively for embedded polarity questions about the episodic past or present as in *I don't know whether she has arrived already*.

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[3] ATT – attributive linker; COMP – complementizer ; CONT – continuous aspect; COP – copula; COS – change of state; DEF – definite; DEM – demonstrative; DISC – discourse marker; DIST – distal TAM; EX – exclusive; IMPF – imperfective; IN – inclusive; LOC – locative; MED – medial; MOD – assertion marker; POSS – possessive; POT – potential ; PROX – proximate; REAL – realis; REDUP – reduplication ; RES – resultative suffix ; TOP – topic marker; TRANS – transitivizer;

	enclitic	proclitic	monosyllabic
Positive Realis	=*m*	*mw*=	*mwe/mV*
Negative Realis			*to*
Positive Potential	=*p*	*w*=	*wV*
Negative Potential	=*n*		*nV*
Distal	=*t*	*t*=	*tV*

Table 1: The main TAMP markers of Daakaka (cf. von Prince, 2015)

- *bwet* has the same temporal-modal implications as the realis marker, with the additional information that an event constitutes a new development.

The positive realis marker is by far the most frequent in my corpus. It is used to talk about the contextually determined actual past and present. In fictional settings, where the actual present is shifted to a fictional world, the realis marker is also used throughout. The potential markers are used to talk about future developments relative to the matrix clause or relative to the utterance context; they can also refer to epistemic possibilities of the present (but not the past). In the following discussion, we will contrast the distal marker with the realis marker in particular. First, however, let us have a closer look at the distal and its various functions.

4. The distal TAM marker

4.1. Discontinuous past

As we have seen in the previous section, TAM markers in Daakaka are obligatory in finite sentences. In this section, we will explore the distal marker in more detail and see how it corresponds to the category of a discontinuous past marker as observed by Plungian and van der Auwera (2006) and Cable (2016).

Plungian and van der Auwera (2006) suggest the following typical properties for discontinuous past markers.

(3) a. They are idle past markers: In the majority of event descriptions of the past, they are *not* used.
b. They are mostly used with imperfective predicates, in which case they denote states that do not extend to the present moment.
c. When they occur with perfective event descriptions, they express that the result of an action does not hold at the time of speaking.

I will show now that all these criteria apply to Daakaka. I will start with the observation that the realis is the standard marker to refer to past events. In my corpus, there are over 8400 matches for the realis marker as opposed to just over one thousand occurrences of the distal. And only in a minority of those cases where the distal marker is used does it clearly express a discontinuous past. Most of the texts in the corpus are narratives about the actual or fictional past, and in both cases, the realis marker is the most frequent form throughout. The following beginning of a story illustrates this:

(4) *bili na sa wotop **mwe** pa,*
   time COMP TOP breadfruit REAL bear.fruit
   "when the breadfruit tree bore fruit," (5443)

(5) *te gee **ma** ka t-en sivi ye=∅ vyan te vyan du ane*
   DISC flying.fox REAL say and-3S.POSS lorikeet 3D=POT go DISC go stay eat
   wotop
   breadfruit
   "the flying fox suggested to the lorikeet that they go to eat breadfruit" (5444)

(6) *ye=**m** vyan **ma** ge=tak, du en-en vyan te*
   3D=REAL go REAL be.like=PROX stay REDUP-eat go DISC
   "they went like that and they were eating, when…" (5445)

Having established that the default marker for the actual past is the realis marker, I will now turn to the distal marker in unembedded environments where it refers to events or states of the actual past. These cases almost always involve a discontinuity interpretation.

In accordance with (3b), most of those cases involve stative predicates and then induce the interpretation that something used to be the case but is no longer the case. A typical example is given in (7), where the stative predicate is *dyanga* (not exist). The speaker talks about the millipede being an alien species which only arrived on Ambrym recently.

(7) *dereli, nge **te** dyanga teve nyem, nge bwet dakap me kyun*
   millipede 3S DIST lack side.of 1PL.EX 3S COS recently come just
   "the millipede didn't use to be with us [here], it just came recently" (2203)

Another example illustrates the use of the distal with the imperfective auxiliary *du* to talk about the habitual, discontinuous past.

(8) *te t=i seli swa na yap myató nyoo **ya=t** **du** gene meerin*
   DISC DIST=COP road one COMP old.man old 3P 3P=DIST IMPF make long.time
   "[spear throwing] was a tradition the old ones used to perform long ago" (5201)

As required by generalization (3c), the distal marker can also function as a discontinuous past marker in the context of perfective event descriptions; as expected, it then usually expresses that the result of an action does not hold at the speech time. The following example is from a story about a group of people who want to cultivate a new patch of bush for food crops. But a mischievous *lisepsep* (a dwarf-like creature with magical powers) makes the trees grow back as they were before. When they come back to visit the next day, one person expresses their astonishment that the tree they had cut down is whole again: The result of the cutting no longer holds.

(9) *swa mwe ka, nye nenyu **na=t** me te te lee en=tak*
   one REAL say 1S yesterday 1S=DIST come DISC cut tree DEF=PROX
   "one said: 'I cut this tree yesterday' (lit.'I had come and cut this tree')" (3074)

In addition to the properties by Plungian and van der Auwera (2006), Cable (2016) adds suggests the following generalization:

> [...] there does not appear to be any language with an obligatory discontinuous past marker; that is, in every language with a putative "discontinuous past", the marker in question does not have to be used in contexts supporting a cessation inference.

This, too, is the case in Daakaka. Thus the following two sentences come from two different versions of the same story, recorded at different occasions. They are almost identical, except for two things:

1. The main TAM marker in (10) is a realis marker, as opposed to the distal marker in (11).
2. The sentence with the realis marker in (10) contains the temporal adverbial *meerin* "a long time ago".

(10)   ***meerin***   *nya ye* ***mw=i***   *bivian na*   ***mu***   *vu*   *ten*
        long.time 3D   3D REAL=COP friend COMP REAL good very
        " before, [the rat and the cat] used to be good friends" (0912)

(11)   *pus myane tomo, nya ye* ***t=i***   *bivian* ***tu***   *vu*   *ten*
        cat with   rat   3D   3D DIST=COP friend DIST good very
        "the cat and the rat, they used to be very good friends" (4597)

This shows that distant and discontinuous past can be referred to by the realis marker as well as the distal. Without further specification however, the default interpretation of the realis marker is a reference to the utterance time or the topic time (which are identical at the very beginning of a story). An expression like *meerin* ("a long time ago") can help to get the intended, non-default reference to the past.

In sum, this section has shown that the Daakaka distal marker can clearly be identified as a discontinuous past marker by the criteria brought forward in the literature.

4.2. Other functions of the distal

Other than marking the discontinuous actual past, the distal is also instrumental for talking about counterfactuality. It is the only marker in the language that can be used in the context of counterfactual developments in the past or present. This reference is available in matrix clauses, if the context makes a counterfactual interpretation plausible:

(12)   *Nye na*   *bwe*   *dimyane ka*   *ebya-ok*   *we pwer kyun, [na=****t***   *ka pini or.]*
        1SG 1SG CONT want   MOD wing-3S.POSS POT stay just   1SG=DIST fly fill   place
        "I wish I had wings, I would fly around everywhere."

Counterfactual interpretations can of course also be found in conditionals:

(13) *[tati, saka   w=i   vyaven en=tak   te]   [saka   **ko=t**   esi*
      dad   MOD.NEG POT=COP woman DEM=PROX Glossdisc MOD.NEG 2SG=DIST see
      nye]
      1SG
      "father, if it had not been for this woman, then you would never have seen me again"
      (4856)

Complement clauses of verbs of thinking, wishing and saying can also be headed by the distal to signal that the prejacent is not asserted by the speaker:

(14) *te   ma   **ka ti**   mini sye   swa yen kava*
      DISC REAL say DIST drink something one in   kava
      "and he (wrongfully) said he had drunk something in the kava."

In sum, we have seen that, outside of the protasis of temporal and conditional clauses, the distal marker can refer to the discontinuous actual past, or to the counterfactual past, present or future. Within the protasis of temporal and conditional clauses, it may also refer to the future. However, by far the most frequent environment for the distal to occur is the protasis of temporal and conditional clauses. In (15), the distal expresses a reference to the episodic past:

(15) *[or ka   **te**   myaek] te   mwe me vyan te   syu ane   apyaló-ten*
      place MOD DIST be.night DISC REAL come go   DISC land TRANS ship-native
      "at night, he went and sat down in the canoe" (4723)

Within this environment, its interpretation and distribution crucially differs from matrix clauses in several respects:

1. It occurs with non-stative predicates as the norm, not as the exception.
2. There is no discontinuity effect.
3. It does not necessarily refer to past events. It can also refer to the generic present and to the future.

Of course, point 2. is also crucial for the hypothesis that the discontinuity reading is not part of the lexical definition of the distal marker, but comes in as an implicature. In the following example, the distal marker does not refer to the past at all, but rather to the generic present. Accordingly, there is no discontinuity reading here. Someone could have an appetite for eating doves right now, nothing to the contrary is implicated by this sentence.

(16) *[ka   vyanten **te**   dimyane ka   wa ane maa] te   mwe gene kuo*
      COMP person DIST want   MOD POT eat dove DISC REAL make trap
      "When someone wants to eat dove, they make a trap" (0523)

The example in (17) illustrates a reference to the episodic future. It is uttered by a small bird in a story where this bird wants to steal breadfruits from the magical creature known as *lisepsep*.

(17) *[ka   lisepsep **te**   me], te   nye ka   na=p   ka*
      COMP lisepsep DIST come DISC 1S MOD 1S=POT fly
      "if the lisepsep comes, then I will fly away." (4496)

This kind of temporal reference is only ever available for the distal in the protasis of temporal and conditional clauses. It is not only absent in matrix clauses, but also from complement clauses, relative clauses and adverbial clauses. Usually, temporal and conditional clauses are introduced by the complementizer *ka*, but even if *ka* is not there, clauses headed by the distal can often only be interpreted as temporal or conditional:

(18) *[**ki=t**   me   a=tak]   ka   na w=ane kimim*
      2P=DIST come LOC.DEM=PROX MOD 1S POT=eat 2P
      "if you come here, then I will eat you!" (3133)

(19) *[**ko=t**   kii-kuwu] te   mu   kuo*
      2S=DIST dig-RES.out DISC REAL run
      "when you dig it out, it runs away" (6104)

For reasons of space, I cannot give a full account why these temporal references become available for the distal exclusively in these environments. I will argue below that they are covered by the lexical definition of the distal, but typically blocked by pragmatic defaults and via its contrast to the realis and potential markers. In this particular context, however, this contrast is partially removed because the realis marker in particular is not allowed in this environment.

Concluding this section, we have seen that the functions of the distal marker go far beyond a reference to the discontinuous past. In the right context, it can also refer to counterfactual scenarios. And in the protasis of temporal and conditional clauses, a reference to the future and present also becomes available.

5. Previous approaches to discontinuity interpretations

5.1. Altshuler and Schwarzschild (2012)

Altshuler and Schwarzschild (2012) discuss the cessation implicature of English simple past with stative predicates. For example, in the given context in (20), B's utterance implicates that Scotty is no longer anxious:

(20) A: How is Scotty doing?
      B: He was anxious.

Their analysis relies on two assumptions: One about the semantics of stative predicates, and one about the contrast of English simple past to English simple present. I will argue in this section that the cessation implicature for the distal cannot be derived in the same way that Altshuler and Schwarzschild (2012) propose for English simple past. One important empirical difference that already foreshadows this conclusion is that the discontinuity reading for the Daakaka distal also applies to non-stative predicates, in contrast to English simple past. The theoretical reasons for

this difference are however interesting enough to deserve some exploration. Let us first briefly review the proposal by Altshuler and Schwarzschild (2012). One fundamental assumption is that stative sentences have the following temporal profile:

(21)   Temporal Profile of Statives:
       For any tenseless stative clause ϕ, if ϕ is true at moment m, then there is a moment m' preceding m at which ϕ is true and there is a moment m' [sic] following m at which ϕ is true.

The notions of simple past and simple present could then be formalized as follows:[4]

(22)   English simple present, as applying to statives:
       $[\![\text{PRES}]\!] = \lambda w_0 \lambda t_0 \lambda p. \exists t. t = t_0, p(t)(w_0)$

(23)   English simple past, as applying to statives:
       $[\![\text{PAST}]\!] = \lambda w_0 \lambda t_0 \lambda p. \exists t. t < t_0, p(t)(w_0)$

It follows from these assumptions that a stative clause in the present tense logically implies the corresponding sentence in the past tense, but not vice versa.

(24)   a.   *Scotty is anxious* implies
       b.   *Scotty was anxious*

(25) $[\![(24a)]\!] = \exists t. t = t_0, \textbf{anxious}(\textbf{scotty})(t)(w_0)$, assuming (21)
       $\vdash \exists t \exists t'. t = t_0, t' < t, \textbf{anxious}(\textbf{scotty})(t)(w_0), \textbf{anxious}(\textbf{scotty})(t')(w_0)$
       $\vdash \exists t. t < t_0, \textbf{anxious}(\textbf{scotty})(t)(w_0) = [\![(24b)]\!]$

This means that simple present and simple past in English are scalar alternatives. When an utterance is part of a set of scalar alternatives, it implicates the negation of its stronger alternatives. In the case of English tenses, the use of the simple past in a stative description can therefore give rise to the implicature that the prejacent is not true in the present. This same mechanism would not translate straightforwardly to the Daakaka data though, because of the difference between the Daakaka realis and the English present tense. If we only look at the purely temporal usage of the distal and realis markers for the moment, without considering counterfactuals and other modal environments, we might conclude that they only differ from English past and present in that the realis marker also applies to past events in addition to present ones. This idea is spelled out below:

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[4]Here, I am glossing over the reference time concept, which ensures that the cessation implicature does not arise in contexts that are explicitly about the past as in the following context:
(i)   a.   There was a book on the table.
      b.   It was in Russian.
I am also glossing over the authors' assumption that tenseless clauses can be true at intervals, which would be compatible with the following slightly different formalization:
(ii) $[\![\text{PRES}]\!] = \lambda w_0 \lambda t_0 \lambda p \lambda I. \exists t. t = t_0, p(I)(w_0), t \in I$

(26) Daakaka distal (first suggestion, to be rejected):
      $[\![\mathrm{DIST}]\!] = \lambda w_0 \lambda t_0 \lambda p. \exists t. t < t_0, p(t)(w_0)$

(27) Daakaka realis (first suggestion, to be modified):
      $[\![\mathrm{REAL}]\!] = \lambda w_0 \lambda t_0 \lambda p. \exists t. t \leq t_0 p(t)(w_0)$

Let us assume for a moment that these definitions were correct. Then, the distal and the realis would in fact form a scale, since the distal would imply the realis. But this means that the distal would be the stronger expression, the realis marker would be weaker. Therefore, using the distal would not generate an implicature via its contrast to the realis marker. So the above picture cannot be entirely correct. Furthermore, we have seen that the realis marker can refer to the actual past and present and essentially nothing else. Therefore, the definition in (27) cannot be too far off the mark. We will have to reconsider the definition of the distal marker instead.

We will see later on that the definition of the distal marker has to be extended to include also counterfactual developments. However, we cannot extend it to include the actual present. If we did, the realis marker would end up as the stronger alternative to the distal. But then we would no longer get a temporal contrast between the two and would no longer expect the distal to refer to the actual world at all. Therefore, the cessation implicature cannot be derived purely from a scalar contrast. The same problem is faced by Cable (2016), which is the second approach we are going to review.

5.2. Cable (2016)

At first glance, the approach by Cable (2016) does not appear to work for Daakaka because it is based on the assumption that the discontinuity interpretation is a consequence of the optionality of tense marking. Quoting from the abstract of Cable (2016):

> I develop an account of the cessation inference in Tlingit, whereby it arises from the optionality of the past-tense marker in question. I argue that this account should be extended to all putative instances of "Discontinuous Past", since it would capture the fact that putative cases of "Discontinuous Past" only ever arise in optional tense languages.

Daakaka is a straightforward counterexample to the above generalizations. The Daakaka TAM markers have modal and, to a lesser extent, aspectual implications as well as temporal ones. In that sense, it could be argued that they are not tense markers at all. However, the same goes for most markers that have been labeled as tense markers; thus, indicative tense forms in European languages have usually different modal implications from subjunctive ones. And markers from other languages that appear to have essentially the same modal-temporal interpretations as the realis marker have been labeled as non-future tense markers.

In short, Daakaka is a language that requires any finite clause to be marked by a morpheme from a small paradigm of TAM markers. And the meanings of these markers have temporal

implications as well as modal and, to a lesser extent, aspectual ones. Daakaka can therefore be said to have obligatory tense marking. It is definitely not an optional-tense language in the sense intended by Cable (2016).

However, a closer look reveals that Cable (2016) is still potentially relevant for the puzzle at hand. In fact, what is crucial for Cable (2016)'s analysis is not the optionality of tense marking, but the presence of a non-future tense that contrasts with the marker expressing discontinuous past. And the Daakaka realis marker may well be described as a marker of non-future tense – with the additional modal restriction to actual developments. It turns out that the facts reported by Cable (2016) for Tlingit appear very similar to Daakaka. There are two theoretical reasons why I will still not adopt Cable (2016)'s analysis here:

1. One of the pragmatic principles he assumes appear to directly contradict Gricean reasoning. As a result, the analysis predicts that speakers should choose the weakest possible tense marker, contradicting standard pragmatic reasoning according to which weaker expressions are blocked by their stronger alternatives.
2. If we adopt only the definitions for the distal and the realis (non-future) without the above pragmatic principles, we would predict that the realis, as the weaker alternative, should not be used whenever the distal can felicitously be used instead. This is however not the case.

Let us start with the second point, since it also directly builds on the observations we have made in the previous section. There, we have reviewed the following assumptions:

1. The realis marker refers to actual events of the past or present.
2. The distal marker refers to actual events of the past.

I have already foreshadowed that my analysis will abandon the second of these assumptions. If these assumptions were true, then the distal and the realis would be scalar alternatives, with the distal being the stronger alternative of the two. I have argued above that this setup cannot provide us with an explanation for the discontinuity reading in the style of Altshuler and Schwarzschild (2012), because the elements in this scale are in the wrong order: Altshuler and Schwarzschild (2012) can derive their cessation implicature because the present (in combination with statives) is the stronger element; but in our case, the past, or distal, is stronger.

Not only would this situation under standard pragmatic assumptions fail to get us the desired discontinuity implicature, however. It would also make false predictions: Thus, since you should always choose the strongest assertable candidate of a scale, it should be infelicitous to use the realis marker in a situation where the distal marker could also have been used. But we have seen that this happens without any restrictions. The relevant example pair is repeated below, showing the realis in a context that clearly supports a discontinuity inference:

(10) **meerin** *nya ye* **mw=i**   *bivian na* **mu** *vu ten*
      long.time 3D 3D REAL=COP friend COMP REAL good very
      " before, [the rat and the cat] used to be good friends" (0912)

(11) *pus myane tomo, nya ye **t=i**   bivian **tu**   vu   ten*
    cat with   rat   3D 3D DIST=COP friend DIST good very
    "the cat and the rat, they used to be very good friends" (4597)

Furthermore, if the realis and the distal were true scalar alternatives, using the realis should in fact implicate the negation of the (stronger) utterance with the distal. In other words, the use of the realis should then have the implicature that something is the case in the present, but was not the case in the past. But this effect cannot be observed, as also illustrated by (10). The situation in Tlingit is virtually identical with respect to the considerations at hand, and yet Cable (2016) proposes that the discontinuity interpretation of the Tlingit past still pragmatically derives from its contrast to non-future tense. The key element in this proposal is the following pragmatic principle for production:

(28)   (Cable, 2016: (36)): Make the topic time as large as possible.

According to this principle, if you can possibly use an expression that covers both the speech time and a time prior to that, you should always do that. This would of course directly reverse the pragmatic defaults worked out so far. It would also seem to contradict the Gricean principle of Quantity, which has previously been assumed to operate also on the interpretation of tenses (Smith et al., 2007; Mucha, 2015).

It will remain to be seen which pragmatic principles guide the choice and interpretation of TAM markers cross-linguistically, and this is still a very new field with much left to discover. But this initial assessment should at least have convinced us that there is room for doubt when it comes to Cable (2016)'s assumption in (28). And that looking for an alternative approach may be worthwhile.

In sum, we have seen that a simple, elegant solution that merely appeals to scalar alternatives along the lines of Altshuler and Schwarzschild (2012) is not feasible for the Daakaka system. The same problem is faced by Cable (2016), who introduces a somewhat counterintuitive pragmatic principle to solve it. In the following section, I will propose an alternative route, which harnesses the power of established pragmatic principles by looking beyond the merely temporal meanings of the distal and taking into account its modal implications.

6. The modal dimension

6.1. Fundamental observations and assumptions

If we only take into account the purely temporal reference of the distal and realis markers, the distal would appear to have the narrower definition and be the stronger of two scalar alternatives. Given that, it would seem puzzling that its use has any implicatures at all. In this section, I will argue that the distal in fact has a much wider reference than the realis and they are not scalar alternatives. This becomes clear when we also take into account the modal dimension.

We have seen in section 4.2 that the distal not only refers to the discontinuous actual past. It is also the only option in the language to talk about counterfactual scenarios in the past and

present. And in the context of conditional and temporal clauses, it can also refer to future eventualities. The counterfactual use of the distal in particular is fairly typical cross-linguistically for markers of discontinuous past. As Plungian and van der Auwera (2006) write:

> The use of the discontinuous past markers within hypothetical or counterfactual conditionals (the boundary between them is not always very neat, cf. Comrie 1986 and Athanasiadou and Dirven 1997 for more detail) is widely attested, including, as far as we can judge, almost all Creole and West African systems, witness Wolof (30a).

The relation between the past and the counterfactual has been observed early and explored by many, prominently including Fleischman (1989); Iatridou (2000), to name just two. I will here propose a new approach to this relation, whose implications go far beyond the scope of this paper. While I will not be able to explore all its logical constraints and consequences in this context, it will suffice to define and model the meaning of the distal including both its temporal and its modal dimensions and thus allow us to move forward with the analysis of the discontinuity interpretation.

The main ingredient for my analysis is the branching-times structure that is a very well-established tool for exploring the relation between time/ tense and modality (e.g. Dowty, 1977; Thomason, 1984; Condoravdi, 2002; Laca, 2012; Ippolito, 2013)

My basic definition of the branching structure follows Thomason (1984):

(29) Definition Branching Times: A branching-times frame $\mathfrak{A}$ is a pair $\langle I, < \rangle$, where
    a. I is a non-empty set of indices i; $<$ is an ordering on I such that if $i_1 < i$ and $i_2 < i$, then either $i_1 = i_2$, or $i_1 < i_2$, or $i_2 < i_1$.
    b.   A **branch** through i is a maximal linearly ordered subset of I containing i.
    c.   An index i_1 is called a **predecessor** of i_2 iff $i_1 < i_2$; it is a **successor** of i_2 iff $i_2 < i_1$

I propose here a major theoretical innovation to this approach. Thomason (1984) and everyone else working with branching times, to the best of my knowledge, has only ever considered the definition in (29) as a way to define historical accessibility. This is why quantification over branching times has always been restricted to those branches that are identical up to the actual present. Thus, in the toy model represented in the following figure, if i_2 is the actual present, then quantification is restricted to branches b_3, b_4.

It is also possible to quantify over all six branches $b_1, \ldots b_6$, if one shifts the perspective backwards to i_1. However, it is not possible to quantify exclusively over b_1, b_2, b_5, b_6, because from i_2 they are not accessible at all, and from the perspective of i_1 the precedence relation cannot distinguish them from b_3 and b_4. The decision to restrict quantification in this way was originally well motivated, since the model was designed to define historical accessibility. However, I propose to not treat the branching structure itself as an accessibility relation but as an ordering relation on the set of indices that allows for the definition of various temporal-modal domains. The precedence relation generates the following three-way distinction between modal-temporal
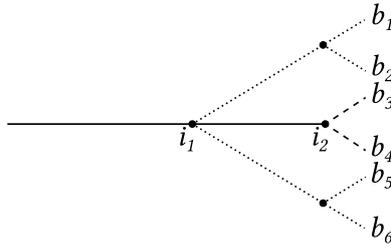
Figure 1: A branching-times structure. Relative to i_2, the solid line represents the actual past, the dashed lines the possible futures and the dotted lines counterfactual developments.

domains relative to the contextually defined actual present i_c:

(30) a.   the actual (past or present): $\{i | i \leq i_c\}$
      b.   the counterfactual (past, present or future): $\{i | i \nleq i_c, i_c \nleq i\}$
      c.   the possible (future): $\{i | i_c < i\}$

6.2. Definitions and derivation

I propose that natural language expressions can refer to any of the three domains in (30) to the exclusion of the others, as well as to subsets and combinations of them. We have seen that the distal can refer to all temporal-modal domains except for the actual present. The following definition captures this observation:[5]

(31) $[\![\text{DIST}]\!]^{g,c} = \lambda i : i \neq i_c.i$, where i_c is the contextually defined actual present (by default the index of utterance).

We can now also take the definition of the realis in (27) and re-cast it in the newly developed terms:[6]

(32) $[\![\text{REAL}]\!]^{g,c} = \lambda i : i \leq i_c.i$

These definitions are illustrated in figure 2.

The definition of the distal is strongly reminiscent of Iatridou (2000)'s Exclusion Feature for English simple past. At the same time, its grounding in a branching-times structure makes it directly comparable to the realis marker. We can now see that the distal marker and the realis marker are not really scalar alternatives at all. Their meanings overlap, but neither fully includes the other. At the same time, we can see that the definition of the distal is much less

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[5]I adopt the standard assumption that tense expressions place presuppositional restrictions on pronominal tenses, though nothing hinges on this decision at this point. I recommend Bochnak (2016) for a concise and recent overview.

[6]Also compare with the proposal by Krifka (2016) for the very similar realis marker in the neighbouring language Daakie.
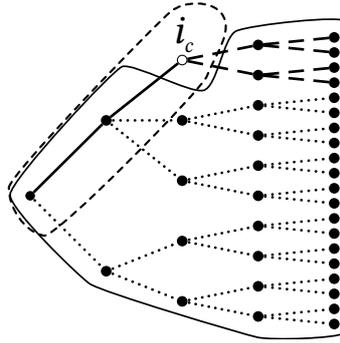
Figure 2: The temporal modal domains of the realis marker (dashed outline) and the distal marker (solid outline).

restrictive. The distal marker is less informative than the realis marker. This is well in line with the observation that the default way to talk about the actual past is to use the realis marker, not the distal. Linking back to the previous discussion, we can still not operationalize a scalar contrast between the realis and the distal as in Altshuler and Schwarzschild (2012). But in contrast to Cable (2016) we can now see that the past (distal) marker is the less informative of the two and I suggest that we can get some leverage out of this difference for deriving the discontinuity interpretation.

To account for the interpretation of the distal, we will need to appeal both to an interpretation principle and to a production principle, just as Altshuler and Schwarzschild (2012) and Cable (2016). Altshuler and Schwarzschild (2012) could simply appeal to the Gricean maxim of Quantity. Cable (2016) posited the production principle cited in (28) to reverse the effects of the maxim of Quantity. With the definitions in (31) and (32), we can once again appeal to Quantity as the driving force behind the discontinuity interpretation. Even though the realis and the distal are not scalar alternatives, one is clearly more restrictive than the other. This difference in restrictiveness can be understood in at least two ways – in terms of the domains referred to and in terms of quantities of indices. Out of the three different domains identified in (30), the realis only includes one, while the distal cuts across all three. Quantities of indices are not trivially measured since I understand the branching-times structure as a concept the scope and granularity of which change dynamically and which contains potentially infinite numbers of indices. But to compare the distal with the realis, consider that in the domain of actual indices, the distal contains only a single index less than the realis. So in any situation that allows for more than a single moment of future and/ or more than a single counterfactual index, the quantity of indices referred to by the realis is smaller than that referred to by the distal. For my proposal to be as concrete as possible, I suggest the following principle:

(33) **Simplicity Principle of Production (SPP)**: Always choose the TAM marker quantifying over the narrowest possible modal-temporal domain.

This principle is a straightforward extension of Gricean Quantity to TAM expressions and in direct contradiction to Cable (2016)'s principle in (28).

To derive the interpretation of the distal, I also need to adapt an interpretation principle that, by default, a TAM expression is understood to the world and time of utterance. In the context of tense semantics, a hierarchy of defaults has already been suggested in the literature:

(34) **Simplicity Hierarchy of temporal references** (Mucha cf 2015: 69, following Smith et al. 2007):
present > past > future

I propose to extend this hierarchy to the modal dimension of TAM meanings in the following way:

(35) **Simplicity Hierarchy of Modal-Temporal Domains**:
actual present > actual past > possible futures > counterfactual past/present/futures

I can at this point not explore whether the counterfactual past, present and futures are internally ranked, or how this hierarchy might look. For our purposes, it should suffice to say that reference to counterfactual worlds is less preferred relative to reference to the actual past and present and to the possible futures.

With these definitions and principles in place, we can now walk through the pragmatic process that generates the discontinuity interpretation:

1. The speaker uses the realis marker.
2. Let us assume that nothing in the context suggests that counterfactual events are relevant.
3. By (35), the default interpretation for the distal marker is a reference to the actual past.
4. But if the speaker wants to talk about the actual past, she should just have used the realis, by principle (33).
5. Then, the violation of (33) triggers the discontinuity implicature.

Thus, by defining the modal implications of the distal marker in terms that make them directly comparable to the realis marker, we can operationalize the Gricean principle of Quantity to derive the discontinuity implicature.

7. Conclusion

The Daakaka distal matches the cross-linguistic criteria for a marker of discontinuous past. Contrary to the hypothesis by Plungian and van der Auwera (2006), its discontinuity reading is probably not lexically derived, but a pragmatic function of its contrast to the realis marker. Contrary to the generalization by Cable (2016), Daakaka is not an optional-tense language. I have argued that the discontinuity reading of the distal marker cannot derive from a scalar contrast to the realis marker and that in fact the implicature would be quite puzzling if we only take into account the temporal dimensions of its meaning. However, if we also consider its modal dimension, we can still appeal to the Gricean maxime of Quantity to derive the discontinuity implicature.

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