

# Counterfactuality and Future Time Reference: The Case of Paraguayan Guaraní *-mo'ã*

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## Abstract

Paraguayan Guaraní has a verbal suffix *-mo'ã* that realizes future time reference in one type of clause and counterfactuality in another. This paper explores the truth-conditional semantics of *-mo'ã* in the two types of clauses and identifies parallels and differences between counterfactual and future time interpretation. The paper concludes by discussing the feasibility of a unified analysis of *-mo'ã*.

## 1 Introduction

The Paraguayan Guaraní (henceforth Guaraní) verbal suffix *-mo'ã* occurs in clauses with future time reference and clauses with a counterfactual interpretation. Which interpretation arises depends on the position of *-mo'ã* with respect to the circumfix *n(d)(a)–...–i*, which expresses sentential negation. The example in (1), where *-mo'ã* is inside the negation circumfix, has future time reference whereas the examples in (2), where *-mo'ã* occurs in a positive sentence (2-a) or outside of the circumfix (2-b), receive a counterfactual interpretation (translated with *almost*).<sup>1</sup>

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<sup>1</sup>Guaraní is spoken by about four million people in Paraguay and surrounding countries. The data presented here were collected during yearly fieldwork from 2004 to 2008. The Guaraní examples are given in the standardized orthography of Guaraní used in Paraguay (Ministerio de Educación y Cultura 2004, cf. also Velázquez-Castillo 2004, 1421f.), except that all postpositions are attached to their host. Following the official orthography, accents are not written for normally accented words (stress on the final syllable); stressed nasal syllables are marked with a tilde. Examples are marked to identify their origin; elicited examples are marked with [E], examples from a corpus of naturally occurring texts with [C]. The following glosses are used: 3 = 3rd person, A/B 1/2/3 sg/pl = set A/B 1st/2nd/3rd person singular/plural, COMPLETE = completive aspect, DEM = demonstrative, DIM = diminutive, EMPH = emphatic, FUT = future marker, incl = inclusive, JE = reflexive/passive, NEG = negation, NOM = nominalizer, PERF = perfect aspect, PL = plural, PROG = progressive, RC = relative clause.

- (1) Nd-a-ha-**mo'ã**-i Paraguay-pe.  
 NEG-A1sg-go-MOA-NEG Asunción-to  
 'I will not go to Asunción.' [E]
- (2) a. A-ha-**mo'ã** Paraguay-pe.  
 A1sg-go-MOA Asunción-to  
 'I almost went to Asunción (but I didn't).' [E]
- b. Nd-a-ha-i-**mo'ã** Paraguay-pe.  
 NEG-A1sg-go-NEG-MOA Asunción-to  
 'I almost didn't go to Asunción (but I went).' [E]

After introducing relevant aspects of the temporal and modal system of Guaraní in §2, the paper explores the truth-conditional semantics of *-mo'ã* in these two kinds of clauses in §3 (future time interpretation) and §4 (counterfactual interpretation). In these sections, the suffix is semantically analyzed as *mo'ã<sub>1</sub>* and *mo'ã<sub>2</sub>*, respectively, i.e. as if the suffix was ambiguous. Whether a unified analysis is possible is discussed in §5.<sup>2</sup> (The suffix is glossed as '–MOA' throughout the paper.)

## 2 Basics of Guaraní temporality and modality

Verb stems in Guaraní are obligatorily inflected for person and number with one of two sets of cross-reference markers (set A and set B, cf. e.g. Gregores and Suárez (1967) for details). The majority of verbs in natural discourse are only marked for person/number; in matrix clauses, these *unmarked verbs* are compatible only with a realis (non-future) interpretation, as illustrated in (3) and (4). The unmarked verb *o-ke* 'A3-sleep' in (3-a) has present time (and progressive aspectual) reference, whereas the unmarked verbs *o-heja* 'A3-leave' and *o-ho* 'A3-go' in (3-b) are interpreted at the past reference time of the given context. Guaraní has no present or past tense morphemes.

- (3) a. Context: Maria returns from her daughter's room and reports:  
 Rossáni **o-ke**.  
 Rossani A3-sleep  
 'Rossani is sleeping.' [overheard]
- b. Context: A woman had a child out of wedlock.  
 I-memby **o-heja** ha **o-ho** mombyry.  
 B3-child A3-leave and A3-go far  
 'She left her child and went far away.' [C]

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<sup>2</sup>Guaraní has a verb stem *mo'ã* 'think' that is homophonous with the suffix under discussion here. Whether the verb stem and the suffix are diachronically related is an open question.

Unmarked verbs in matrix clauses cannot cooccur with future time adverbs such as *ko'ẽro* 'tomorrow' in (4-a) and are incompatible with modal subordination contexts, as in (4-b):

- (4) a. #*Ko'ẽro a-purahei.*  
tomorrow A1sg-sing  
(Intended: Tomorrow I will sing.) [E]
- b. Context: I'm hungry. Somebody tells me:  
*Re-'u-va'erã peteĩ pehengue sópa. #Ne-ryvatã./Ne-ryvatã-ta.*  
A2sg-eat-must one piece corn.bread A2sg-full/A2sg-full-FUT  
'You should eat a piece of corn bread. #You are full./You'd be full.' [E]

Verbs marked with *-mo'ã* are part of a verbal paradigm that includes, in addition to unmarked verbs, verbs suffixed with the future marker *-ta* '–FUT', the modal markers *-se* '–want', *-ne* '–might' and *-va'erã* '–must' and the aspectual markers *-ma* '–PERF' and *-pa* '–COMPLETE' (see Gregores and Suárez (1967), Liuzzi and Kirtchuk (1989), and Tonhauser (2006) for details).

### 3 Future time reference with *-mo'ã*

As mentioned above, *-mo'ã* realizes future time reference when it is realized inside the negation circumfix *n(d)(a)–...–i*, cf. also (5-a). Future time reference in positive clauses is generally expressed with the suffix *-ta* '–FUT', as in (5-b):<sup>3</sup>

- (5) a. *Nd-a-ha-mo'ã-i* Paraguay-pe. (= (1))  
NEG-A1sg-go-MOA-NEG Asunción-to  
'I will not go to Asunción.' [E]

<sup>3</sup>*-ta* can express future time reference with negated clauses, especially with embedded clauses, when it occurs outside the negation circumfix: (ia), for example, is as acceptable as (ib). In matrix clauses, however, my consultants strongly prefer (5-a) over (iia); (iib) is ungrammatical.

- (i) a. *Juan he'i ché-ve Maria nd-o-u-i-ta-ha* araka'eve.  
Juan A3.say B1sg-to Maria NEG-A3-come-NEG-FUT-NOM never  
'Juan told me that Maria will never come.' [E]
- b. *Juan he'i ché-ve Maria nd-o-u-mo'ã-i-ha* araka'eve.  
Juan A3.say B1sg-to Maria NEG-A3-come-MOA-NEG-NOM never  
'Juan told me that Maria will never come.' [E]
- (ii) a. *?Nd-a-há-i-ta* Paraguay-pe.  
NEG-A1sg-go-NEG-FUT Asunción-to  
'I will not go to Asunción.' [E]
- b. *\*Nd-a-guapy-ta-i.*  
NEG-A1sg-sit-FUT-NEG  
(Intended: I will not sit down.) [E]

- b. A-há-**ta**      Paraguaý-pe.  
 A1sg-go-FUT Asunción-to  
 ‘I will go to Asunción.’ [E]

The truth-conditional meaning of the suffix *-ta* is analyzed in detail in Tonhauser (2009). This section illustrates that clauses where *-mo’ã* occurs (morphologically inside the negation circumfix (henceforth referred to as ‘NEG-*mo’ã*-clauses’)) have the same temporal and modal properties as positive clauses with *-ta* (modulo negation). I analyze this meaning of *-mo’ã* as *mo’ã<sub>1</sub>*.

### 3.1 Future time reference

A first property shared by clauses with *-ta* and NEG-*mo’ã*-clauses is that they entail future time reference. All 77 sentences with *-ta* in a corpus<sup>4</sup> of naturally occurring data have future time reference, additional texts did not reveal examples where *-ta* does not express future time reference, and attempts to elicit such examples failed (Tonhauser 2009). Likewise, the 13 NEG-*mo’ã*-clauses in my corpus have future time reference, and additional texts did not reveal examples that did not have future time reference.

As expected, clauses with *-ta* and NEG-*mo’ã*-clauses are compatible in out-of-the-blue contexts (i.e. where the reference time is the utterance time) only with future time adverbs (6), not with past time ones (7):

- (6) a. Ko’ëro    o-ký-**ta**.  
 tomorrow A3-rain-FUT  
 ‘Tomorrow it will rain.’ [E]  
 b. Ko’ëro    nd-o-ky-**mo’ã**-i.  
 tomorrow NEG-A3-rain-MOA-NEG  
 ‘Tomorrow it will not rain.’ [E]
- (7) a. #Kuehe    o-ký-**ta**.  
 yesterday A3-rain-FUT  
 b. #Kuehe    nd-o-ky-**mo’ã**-i.  
 yesterday NEG-A3-rain-MOA-NEG

But the temporal reference of neither type of clause is restricted to deictic future time reference: in past contexts such as those in (8), both can realize future time reference relative to a past reference time.

- (8) a. Context: A mother tells about her experiences with taking care of her daughter’s wound: “I was the one who cleaned her wound...”

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<sup>4</sup>The corpus is a collection of nine texts from different genres (fables, personal narratives, conversation), and consists of about 7,300 Guaraní words (which correspond to about 20,000 English words since Guaraní is mildly polysynthetic).

Priméra ve a-hechá-**ta** hīna.  
 first time A1sg-see-FUT PROG

‘I would be seeing it [her wound] for the first time.’ [C]

- b. Context: A mother reports on what the doctor said upon inspecting her daughter’s wound.

Upé-rire he’í-ma-ramo chupe la  
 that-after A3.say-PERF-then 3.to the  
 nd-oi-pe’a-**mo’ã**-i-ha la púnto ichupe.  
 NEG-A3-open-MOA-NEG-NOM the stitch 3.to

‘And then he said to her that he would not open her stitches.’ [C]

In sum, clauses with *-ta* and NEG-*mo’ã*-clauses entail (relative) future time reference. The next section discusses the modal attitudes that are conveyed by these future sentences.

### 3.2 Modal attitudes: intention and prediction/expectation

Both *-ta* and *-mo’ã* convey future time reference with the modal attitudes of intention and prediction/expectation. Utterances with the modal attitude of intention convey an agent’s mental state of intending to make a proposition be true at a time in the future; the intender is committed to do what s/he can to make the proposition true. The examples in (9) illustrate this modal attitude:

- (9) a. Context: A woman is scheming on how to catch the monkey that is playing tricks on her. She says:

A-japó-**ta** ta’anga araity kakuaa porã-va.  
 A1sg-make-FUT figure wax big pretty-RC

‘I will make a pretty big wax figure.’ [C]

- b. Context: A woman invites her visitor to sit down. The visitor replies:

Nd-a-guapy-**mo’ã**-i che-ama, sapy’a-ite-mí-nte a-ju.  
 NEG-A1sg-sit-MOA-NEG B1sg-lady quickly-very-DIM-only A1sg-come

‘I will not sit down, my lady, I only came for a little while.’ [C]

In (9-a), the woman expresses her intention to make a wax figure and, in (9-b), the speaker expresses the intention of not sitting down.

With predictions, the speaker asserts that the proposition will be true at a time in the future: the speaker conveys that, given her/his epistemic state, s/he is committed to the truth of the proposition at a future time. Unlike with intention, no commitment or implication of agency is necessarily associated with prediction. Expectations are a weaker kind of prediction: the speaker does not assert but conveys a strong conviction that, given her/his epistemic state, the proposition

is true at a future time. In the examples in (10) the two modal markers are interpreted with the modal attitude of prediction/expectation:

- (10) a. Context: A father is happy that his daughter will come back home.  
 Hasypevé-ko péina o-je-arreglá-**ta** ko asúnto.  
 finally-EMPH DEM A3-JE-resolve-FUT this matter  
 ‘Finally this matter will get resolved. [C]
- b. Context: A teacher says to a student who has badly hurt her hand:  
 Na-ne-katu-**mo’ã**-i re-eskribi.  
 NEG-B2sg-possible-MOA-NEG A2sg-write  
 ‘You will not be able to write.’ [C]

The speaker of (10-a), for example, asserts that, given his epistemic state, the matter (of his unmarried daughter not living at home) will be resolved.

The modal attitudes are formally analyzed as restrictions on the worlds quantified over by *-ta* and *-mo’ã*, using Kratzer’s (1991) theory of modality. Intention involves a circumstantial modal base and an ordering source that specifies the agent’s intentions, and prediction/expectation involves an epistemic modal base and a stereotypical ordering source (see Tonhauser (2009) for details).

### 3.3 Counterfactual implicature with *kuri* ‘back then’

The Guaraní adverb *kuri*, translated as ‘back then’, is used in natural discourse to locate eventualities at a previously mentioned past time (see Tonhauser 2006, §7.3). I analyze *kuri* ‘back then’ as a past time anaphor. In out of the blue contexts, the past time is accommodated; an unmarked verb like *o-ke* ‘A3-sleep’ that occurs with *kuri* ‘back then’ receives a deictic past time interpretation.

- (11) Rossáni o-ke **kuri**.  
 Rossani A3-sleep back.then  
 ‘Rossani slept.’ (Not: Rossani is sleeping.) [E]

The suffixes *-ta* and *-mo’ã* are compatible with *kuri* ‘back then’; such combinations give rise to an implicature that the eventuality denoted by the verb was not realized. Evidence for this counterfactual implicature is that consultants will spontaneously volunteer continuations that convey that the eventuality was not realized. Consider (12), and its continuation in (12-a):

- (12) Context: Malena saw the weather report two days ago.  
 Kuehe o-ký-**ta** **kuri**.  
 yesterday A3-rain-FUT back.then  
 ‘It was going to/supposed to rain yesterday.’ [E]

- a. ...ha nd-o-ký-i.  
 ...and NEG-A3-rain-NEG  
 ‘...but it didn’t rain.’ [spontaneously volunteered]
- b. ...ha o-ky.  
 ...and A3-rain  
 ‘...and it rained.’ [E]

Evidence that the counterfactual implication is merely an implicature comes from the fact that (12) can also be felicitously continued with (12-b), which states that the eventuality was realized.

In (13), *kuri* ‘back then’ occurs in a NEG-*mo’ã*-clause. Here, the implication arises that Juan went to Buenos Aires (cf. (13-a)):

- (13) Context: Juan’s sister invited Juan to visit her in Buenos Aires. He told me he wouldn’t go. I say:

Juan nd-o-ho-**mo’ã**-i      **kuri**      Buéno Áire-pe.  
 Juan NEG-A3-go-MOA-NEG back.then Buenos Aires-to

‘Juan wasn’t going to go to Buenos Aires.’ [E]

- a. ... hákatu o-ho.  
 but A3-go  
 ‘...but he went.’ [E]

- b. ... ha nd-o-hó-i.  
 and NEG-A3-go-NEG  
 ‘...and he didn’t go.’ [E]

Again, the fact that (13-b), too, is a felicitous continuation of (13) shows that the counterfactual implication is merely an implicature.

### 3.4 Interim summary and analysis

In sum, positive clauses with *-ta* and NEG-*mo’ã*-clauses share the following temporal and modal properties:

1. They entail relative future time reference.
2. Temporal adverbs constrain the temporal location of the future eventuality.
3. Only future time adverbs are acceptable in out-of-the-blue contexts (i.e. in contexts where the reference time is the utterance time); past time adverbs are acceptable in past contexts and with *kuri* ‘back then’.
4. They are compatible with the modal attitudes of intention and prediction.
5. They implicate counterfactuality with the past-time temporal anaphor *kuri*.

Given these similarities between the two types of clauses (modulo negation), it is plausible to explore the hypothesis that *-ta* and *-mo’ã* contribute the same

meaning to their respective clauses. Tonhauser (2009) analyzes *-ta* as a future marker with a modal meaning component:

- (14) The meaning of *-ta*:  
*-ta* presupposes an epistemic modal base with a stereotypical ordering source or a circumstantial modal base with a ordering source that specifies the agent's intentions. If defined:  
 $-ta \Rightarrow \lambda P_{\langle \omega, \langle \iota, t \rangle \rangle} [\forall w' (w' \in \text{best}(MB, OS, \langle w, rt \rangle) \rightarrow \exists t' (rt < t' \wedge P(w')(t')))]$

The suffix *-ta* applies to sentence radicals  $P$ , which denote functions from worlds (type  $\omega$ ) to functions from times (type  $\iota$ ) to truth values. Following Kratzer (1991), the modal base  $MB$  and the ordering source  $OS$  are contextually provided; the three-place operator 'best' (borrowed from Portner (1998)) denotes those worlds in the modal base  $MB$  that are closest to the ideal according to the ordering source  $OS$  at the index  $\langle w, rt \rangle$  (both  $w$  and  $rt$  (reference time) are designated variables).

Assume somebody utters (15-a) out of the blue (i.e. the reference time is the utterance time) while staring into a sky with many dark clouds. The translation of *-ta* combines with the translation of the sentence radical *o-ky* 'A3-rain' (15-b), which denotes the set of world-time pairs (indices) at which it rains. This results in the translation in (15-c) for (15-a):

- (15) a. O-ký-ta.  
 A3-rain-FUT  
 'It will rain' [E]  
 b. Sentence radical: *o-ky* 'A3-rain'  $\implies \lambda w \lambda t [\text{rain}'(t, w)]$   
 c.  $\forall w' (w' \in \text{best}(MB, OS, \langle w, rt \rangle) \rightarrow \exists t' (rt < t' \wedge \text{rain}'(t', w')))$

According to (15-c), (15-a) is true at the actual world  $w_0$  and the utterance time *now* if and only if in all worlds  $w'$  that are best with respect to an epistemic modal base and a stereotypical ordering source at  $\langle w_0, \text{now} \rangle$  there is a time  $t'$  in the future of the utterance time at which it rains in  $w'$ .

Now consider (16-a), also uttered out of the blue and while staring into a dark and cloudy sky. If the suffix *-mo'ã* here has the same meaning as *-ta*, we have to assume that *-mo'ã* semantically outscopes negation even though it (morphologically) is inside the negation circumfix. (I discuss this morphology-semantics mismatch below.) The negated sentence radical *nd-o-ky-i* 'NEG-A3-rain-NEG' denotes the set of indices at which it does not rain (16-b). The meaning of *-mo'ã* is  $\text{mo}'\tilde{a}_1$ , i.e. (14). Applying this to (16-b) results in (16-c).

- (16) a. Nd-o-ky-mo'ã-i.  
 NEG-A3-rain-MOA-NEG  
 'It will not rain' [E]  
 b. *nd-o-ky-i* 'NEG-A3-rain-NEG'  $\implies \lambda w \lambda t [\neg \text{rain}'(t, w)]$   
 c.  $\forall w' (w' \in \text{best}(MB, OS, \langle w, rt \rangle) \rightarrow \exists t' (rt < t' \wedge \neg \text{rain}'(t', w')))$



According to (16-c), (16-a) is true at  $w_0$  and *now* if and only if in all worlds  $w'$  that are best with respect to an epistemic modal base and a stereotypical ordering source at  $\langle w_0, \text{now} \rangle$  there is a time  $t'$  in the future of the utterance time at which it does not rain in  $w'$ . (This reading is too weak, cf. Partee (1973); I assume that this could be amended by assuming that  $t'$  is contextually given and not existentially bound in the scope of the modal.)

The morphology-semantics mismatch is a problem for this analysis since there is independent evidence that morphological structure indicates semantic scope. This is illustrated in (17) for the necessity modal *-va'erã* '–must'. In (17-a), where *-va'erã* '–must' occurs inside the negation circumfix, negation has wide scope ( $\neg\Box$ ); in (17-b), on the other hand, the marker occurs outside the circumfix and has scope over negation ( $\Box\neg$ ). (Other verbal suffixes that show this pattern are *-ne* '–might', *-ve* '–more' and *-se* '–want'.)

- (17) a. Context: A child complains that the teacher doesn't do his homework for him. The father says:  
 Nde-mbo'ehára na-ne-pytyvõ-**va'erã**-i.  
 B2sg-teacher NEG-B2sg-help-must-NEG  
 'Your teacher doesn't have to help you.' [E]
- b. Context: A child doesn't know how to do anything alone because the teacher always helps him do things. The father says:  
 Nde-mbo'ehára na-ne-pytyvõ-**i-va'erã**.  
 B2sg-teacher NEG-B2sg-help-NEG-must  
 'Your teacher must not/should not help you.' [E]

Given the correlation between surface order and semantic scope observed with other verbal suffixes, an analysis of NEG-*mo'ã*-clauses where negation outscopes the meaning of the suffix would be preferable. I return to this in §5.

## 4 Counterfactual interpretations with *-mo'ã*

As mentioned in §1, clauses where *-mo'ã* does not appear inside the negation circumfix, henceforth '*mo'ã*-clauses', receive a counterfactual interpretation: the eventuality denoted by the (non-)negated verb to which *-mo'ã* attaches is implied to have almost been realized in the actual world, but not quite. Accordingly, Guaraní consultants often translate such examples using Spanish *casi* 'almost'.

- (18) a. Context: A girl runs towards a door to prevent being locked out.  
 O-ñe-mboty-**mo'ã** hese puérta.  
 A3-JE-close-MOA to.3 door  
 'The door almost closed for her (but it didn't).' [C]

- b. Context: The airline informs Marco that his flight to Mexico was cancelled. As he is getting ready to return home, the airline tells him that they found a seat on another flight, and he goes to Mexico.

Márko nd-o-ho-i-**mo'ã** Méhiko-pe.

Marco NEG-A3-go-NEG-MOA Mexico-to

‘Marco almost didn’t go to Mexico (but he went).’ [E]

(18-a) expresses that at some past time the prediction (or expectation) arose that the door would close, but at the utterance time the door is not closed. With (18-b) the speaker reports a past expectation that Marco would not go to Mexico but also conveys that he did in fact go. Thus, both examples imply that the eventuality denoted by the (non-)negated verb was not realized; I refer to this as the counterfactual implication of *mo'ã*-clauses.

#### 4.1 Counterfactuality is entailed

I argue in this section that the counterfactual implication of *mo'ã*-clauses is an entailment. Evidence that it is not merely an implicature comes from examples like (19) where the second conjunct is infelicitous in the context of the first.

- (19) a. Context: Juan had a very bad accident.

O-mano-**mo'ã** #ha o-mano.

A3-die-MOA and A3-die

(Intended: He almost died and he died.) [E]

- b. Context: Juan and Martin are presidential candidates.

La hente-kuéra oi-poravo-**mo'ã** Martín-pe #ha oi-poravo

the people-PL A3-chose-MOA Martin-to and A3-chose

Martín-pe.

Martin-to

(Intd.: The people almost chose Martin and they chose Martin.) [E]

The second conjunct in both examples denies the non-realization of the eventuality denoted by the first conjunct. In (19-b), for example, the first conjunct implies that Martin was not chosen (but Juan) and the second conjunct, which states that Martin was chosen, is not felicitous. Since the counterfactual implication cannot be cancelled, it is not an implicature (compare this to the examples in §3.3).

If the counterfactual implication of *mo'ã*-clauses were a presupposition, we would expect it to project in linguistic contexts that function as holes to presuppositions, such as the antecedents of conditionals (20-a) or modals (20-b). (Sentential negation is of course not a suitable test here since NEG-*mo'ã*-clauses receive a future time interpretation.)

- (20) a. Context: Juan is participating in a competition. The person who reaches the top of Mount Everest wins a prize as well as the person who comes close to the top. We are waiting at the bottom and can't see what's going on at the top because of the clouds. Somebody says:  
 O-guahẽ-**mo'**ã-rõ Juan huã-me o-ganá-ma prémio, pero che  
 A3-reach-MOA-if Juan B3.top-to A3-win-PERF prize but B1sg  
 a-pensa o-guahẽ-ha huã-me.  
 B1sg-think A3-reach-NOM B3.top-to  
 'If Juan almost reached the top, he already won a prize, but I think he reached the top.' [E]
- b. Context: Malena is in Asunción to participate in a running competition. Nobody of her family is accompanying her. On the day of the race, we're all in her parents' house to wait for her to call us after the race. Her kid brother is very impatient and keeps asking whether she won or not. Somebody snaps at him:  
 O-gana-**mo'**ã-ne, o-perdé-ne ha o-ganá-ne!  
 A3-win-MOA-might A3-lose-might and A3-win-might  
 'She might have almost won, she might have lost and she might have won!' [E]

If the counterfactual implication was a presupposition, we would expect these utterances to be infelicitous. Take (20-a). The antecedent of the conditional implies that Juan has not reached the top. If this implication was a presupposition, it should also be a presupposition of the entire conditional. The context given for (20-a), however, makes clear that Juan not reaching the top is not in the common ground (since the people at the bottom of the mountain cannot see what's going on). Evidence that the purported presupposition is not accommodated comes from the fact that the continuation *pero che a-pensa o-guahẽ-ha huã-me* 'but I think he reached the top' would be infelicitous with the accommodated presupposition — yet the entire discourse in (20-a) is felicitous. Hence, the counterfactual implication is not a presupposition, but an entailment. Likewise, (20-b) should be infelicitous if the implication that Malena did not win was presupposed by the first conjunct.

## 4.2 Temporal properties

A striking difference between NEG-*mo'*ã-clauses (§3) and *mo'*ã-clauses is their temporal reference. When interpreted at the utterance time, as in the context of (21), the former receive a future time interpretation (21-a), while the latter receive a past interpretation (21-b).

- (21) Context: Laura had an accident and we are very concerned about her.
- a. N-o-mano-**mo'**ã-i.  
NEG-A3-die-MOA-NEG  
'She will not die.' [E]
- b. O-mano-**mo'**ã.  
A3-die-MOA  
'She almost died (but she didn't).' [E]

In the given context, the speaker uses (21-a) to predict Laura's not dying in the future of the utterance time. (21-b), on the other hand, expresses that at the contextually relevant past time (the accident) there was an expectation that Laura would die (but she didn't, in the end). Thus, while both examples involve a prediction/expectation about a future time, this time is in the future of the utterance time in (21-a) but in the future of a past time in (21-b).

As expected then, *mo'*ã-clauses are compatible with past time adverbs in out-of-the-blue contexts (in contrast NEG-*mo'*ã-clauses, cf. (7-b)):

- (22) a. Kuehe o-ky-**mo'**ã.  
yesterday A3-rain-MOA  
'It almost rained/was supposed to rain yesterday (but it didn't).' [E]
- b. Ambue mé-pe Márko nd-o-ho-i-**mo'**ã Méhiko-pe  
other month-at Marco NEG-A3-go-NEG-MOA Mexico-to  
'Last month, Marco almost didn't go to Mexico (but he went).' [E]

The temporal adverbs in these examples constrain the times at which the eventualities were predicted or intended to occur. In (22-a), for example, the temporal adverb *kuehe* 'yesterday' constrains the time at which it was supposed to rain.

*mo'*ã-clauses are also compatible with future time adverbs, such as *ko'ëro* 'tomorrow'. In (23), the eventuality was intended to be realized in the future of the utterance time, at a time within tomorrow.

- (23) Context: The speaker was scheduled to sing the next day but the concert was cancelled.
- Ko'ëro a-purahei-**mo'**ã.  
tomorrow A1sg-sing-MOA  
'Tomorrow I would have sung (but I won't).' [E]

Thus, the counterfactual interpretation does not depend on the intended (or predicted) eventuality not having occurred in the past. Rather, what is crucial is that there is a past time at which there is an intention (or prediction), and, at the utterance time, it is known that the actual world is not a world in the proposition comes true.

### 4.3 Towards a formal analysis

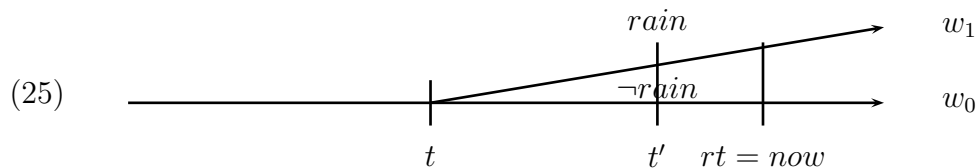
In sum, *mo'ã*-clauses have the following temporal and modal properties:

1. They entail that there is a time in the past of the utterance time at which there is an intention or prediction for the eventuality denoted by the verb to occur at a time in the (relative) future.
2. They entail counterfactuality, i.e. that the eventuality denoted by the verb is not realized at the intended or predicted time in the actual world.
3. Temporal adverbs constrain the temporal location of the intended/predicted counterfactual eventuality. In out-of-the-blue contexts, the counterfactual eventuality is located in the past of the utterance time (and hence they are compatible with past time adverbs) but future time adverbs are also acceptable.

To illustrate, imagine (24) being uttered by a disgruntled farmer:

- (24) Kuehe o-ky-mo'ã.  
 yesterday A3-rain-MOA  
 'It was supposed to rain yesterday (but it didn't).' [E]

(24) is true at the utterance time if and only if there is a time  $t$  in the past of the utterance time at which there is a prediction that it rains at a time  $t'$  in the (relative) future of  $t$  and that  $t'$  is in the denotation of *kuehe* 'yesterday'. Additionally, as depicted informally in (25), (24) asserts that it did not rain in the actual world  $w_0$  (but only in worlds  $w_1$  that were like  $w_0$  at least until  $t$ ).



Since the temporal adverb *kuehe* 'yesterday' (26-a) constrains the temporal location of the counterfactual eventuality, it combines with the sentence radical *o-ky* 'A3-rain' (26-b) to give the translation in (26-c). I analyze the meaning of the suffix *-mo'ã* in *mo'ã*-clauses as *mo'ã*<sub>2</sub>: the translation of *-mo'ã* in (26-d) applies to (26-c) to give (26-e), which is the meaning of (24).

- (26) a. *kuehe* 'yesterday'  $\implies \lambda P_{\langle \omega, \langle t, t \rangle \rangle} \lambda w \lambda t [P(w)(t) \wedge t \subseteq \text{yesterday}']$   
 b. Sentence radical *o-ky* 'A3-rain'  $\implies \lambda w \lambda t [\text{rain}'(w)(t)]$   
 c.  $\lambda w \lambda t [\text{rain}'(t, w) \wedge t \subseteq \text{yesterday}']$   
 d. *-mo'ã*  $\implies \lambda P_{\langle \omega, \langle t, t \rangle \rangle} [\exists t' (t' < \text{now} \wedge \forall w' (w' \in \text{best}(MB, OS, \langle w, t' \rangle) \rightarrow \exists t'' (t' < t'' \wedge P(w')(t'') \wedge \neg P(w)(t''))))]$   
 e.  $\exists t' (t' < \text{now} \wedge \forall w' (w' \in \text{best}(MB, OS, \langle w, t' \rangle) \rightarrow \exists t'' (t' < t'' \wedge t'' \subseteq \text{yesterday}' \wedge \text{rain}'(t'', w') \wedge \neg \text{rain}'(t'', w))))$

(24) is true if and only if there is a time  $t'$  before the utterance time such that in all worlds that are best with respect to an epistemic modal base and a stereotypical ordering source at  $\langle w_0, t' \rangle$  there is a time  $t''$  (in the future of  $t'$  and included in yesterday) at which it rains, and it does not rain at  $t''$  in the actual world  $w_0$ .

## 5 Is a unified analysis of $-mo'\tilde{a}$ possible?

In Table 1, I compare the truth-conditional meanings of NEG- $mo'\tilde{a}$ - and  $mo'\tilde{a}$ -clauses. (FTR stands for ‘future time reference’ and TADV for ‘temporal adverb’.)

	NEG- $mo'\tilde{a}$ -clauses	$mo'\tilde{a}$ -clauses
FTR entailed relative to...	reference time	time before <i>now</i>
Modality: intention, prediction	✓	✓
Counterfactuality	implicated with <i>kuri</i>	entailed
Compatible w/ future TADV?	✓	✓
Compatible w/ past TADV?	in past contexts/with <i>kuri</i>	✓

Table 1: Comparison of NEG- $mo'\tilde{a}$ -clauses and  $mo'\tilde{a}$ -clauses

NEG- $mo'\tilde{a}$ - and  $mo'\tilde{a}$ -clauses share temporal and modal properties, which is reflected in the underlined part of the meanings  $mo'\tilde{a}_1$  and  $mo'\tilde{a}_2$ : both involve relative future time reference and the modal attitudes of intention and prediction.

$$(27) \quad \begin{array}{l} \text{a. } mo'\tilde{a}_1: \lambda P_{\langle \omega, \langle t, t \rangle \rangle} [\underbrace{\forall w' (w' \in best(MB, OS, \langle w, rt \rangle))}_{\rightarrow \exists t' (rt < t' \wedge P(w')(t'))}] \\ \text{b. } mo'\tilde{a}_2: \lambda P_{\langle \omega, \langle t, t \rangle \rangle} [\exists t' (t' < now \wedge \forall w' (w' \in \underline{best(MB, OS, \langle w, t' \rangle)} \\ \rightarrow \underline{\exists t'' (t' < t'' \wedge P(w')(t'') \wedge \neg P(w)(t'')})])] \end{array}$$

Key differences between the two interpretations are the following. First, the counterfactual interpretation  $mo'\tilde{a}_2$  involves an additional (past) time at which the best worlds are determined; hence  $mo'\tilde{a}$ -clauses are compatible with past time adverbs in out of the blue contexts, in contrast to NEG- $mo'\tilde{a}$ -clauses. Second, while both types of clauses entail that the eventuality is not realized, this results from  $mo'\tilde{a}_1$  combining with sentential negation and from the counterfactual entailment of  $mo'\tilde{a}_2$ . Third, while  $mo'\tilde{a}$ -clauses entail counterfactuality, NEG- $mo'\tilde{a}$ -clauses only implicate it in the presence of *kuri* ‘back then’, just like clauses with  $-ta$ .

Is a unified analysis of the suffix possible? What is striking is that the two interpretations of  $-mo'\tilde{a}$  are in complementary distribution:  $-mo'\tilde{a}$  is interpreted as  $mo'\tilde{a}_1$  when it appears inside the negation circumfix and as  $mo'\tilde{a}_2$  when it does not. (Of all the suffixes that can occur both inside and outside the negation circumfix, only  $-mo'\tilde{a}$  exhibits distinct interpretations depending on its position with respect to the circumfix.) A unified analysis of the suffix might capitalize on the idea that it is the relative scope of negation that results in the two interpretations: the meaning

of  $-mo'ã$  would need to be specified such that the future time interpretation results from negation scoping over the suffix (which is desirable on independent grounds, cf. §3.4), and the counterfactual interpretation arises from  $-mo'ã$  not being in the scope of negation. Differences might also be attributable to context dependent elements in the meaning of  $-mo'ã$ , such as the modal base. Future research will have to determine the feasibility of this line of inquiry.

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