Can nominal tense be fake?*

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Abstract:

We show that the nominal past tense of Mbyá *-kue* and the non-past oriented nominal modal *-rã* are used to express counterfactual modality not only in conditional constructions, but also on noun phrases. This strengthens previous claims that temporal and modal markers are interpreted similarly in the nominal and in the clausal domains. We also ask whether the suffix *-kue* should be analyzed as a true past tense or as a fake past tense in counterfactual constructions. We argue that both analyses are consistent with our data and that, as a consequence, fake tense may also be attested in the nominal domain.

Keywords: Nominal tense, fake tense, conditionals, counterfactuals, modality

1 Introduction

This paper discusses the interpretation of 'future under past' morphology in Mbyá Guarani, a Tupi Guarani language spoken in Argentina, Brazil and Paraguay by about 30,000 speakers[1]. I will analyze three construction types involving counterfactual modality: counterfactual conditionals (CFCs), stand alone counterfactual modals (SACFs), and counterfactual noun phrases (CFNPs).

(1) João o-ĩ rire ng-oo   py agỹ oke-'-rã-gue.
     João 3-be CF REFL-house in now 3-sleep-NMLZ-FUT-PAST

     'If João were at home right now, he would be sleeping.'   **CFC**

(2) O-ky va'e-rã-gue   agỹ.
     3-rain NMLZ-FUT-PAST now

     'It should be raining right now.'   **SACF**

(3) Xe-rembireko-rã-gue o-menda João re.
     1-wife-FUT-PAST   3-marry João with

     'The person who was to be my wife got married with João.'   **CFNP**

The use of 'future under past' morphology to express counterfactual modality is common across languages (Iatridou 2000). It is also well know that certain occurrences of the past tense in counterfactual conditionals appear to be temporally vacuous, although the real nature of this phenomenon is disputed (see Ippolito 2013; Schulz 2014). What is more surprising is the fact that the past tense

marker *-kue* and the future marker *-rã* used in these constructions in Mbyá are nominal morphemes. Therefore, these data suggest that both counterfactual 'past over future' morphology and the phenomenon of 'fake past tense' are not restricted to the verbal domain, but are also attested in the nominal domain, strengthening previous claims that tense is not universally a feature of verbs (see among others Lecarme 1996; Nordlinger and Sadler 2004; Thomas 2014).

The paper is structured as follows. In the next section, I provide some background information on tense in Mbyá. In section 3, I give an informal description of the main properties of counterfactual (CF) modals in the three constructions above. In section 4, I propose a unified analysis of all three constructions under the assumption that *-kue* is interpreted as a contentful past tense in CF modals. In section 5, I consider a 'fake past' analysis of *-kue* in CF constructions.

2   Background on tense in Mbya

There is no tense and viewpoint aspect inflection on verbs in Mbyá. Bare verbs have a non-future interpretation, and viewpoint aspect is underspecified:

(4)   Juan i-ñembyayi agỹ/kuee/*ko'erã.
      Juan 3-hungry   now/yesterday/tomorrow
      'Juan is/was hungry now/yesterday/*tomorrow.'

(5)   Juan o-mba'eapo agỹ/kuee/*ko'erã.
      Juan 3-work   now/yesterday/*ko'erã
      'Juan is/was working now/yesterday/*tomorrow.'

In the spirit of Tonhauser (2011b), I assume that the reference time of matrix clauses is provided by a covert temporal pronoun t_0, whose index 0 is presupposed to overlap or precede the time of utterance t_c.

As in Paraguayan Guarani (Tonhauser 2006), there are two nominal temporal markers (NTMs) *-kue* and *-rã* in Mbyá, which are attested on nouns and on nominalized clauses. Examples (6a) and (6b) illustrate their use on nouns.

(6)   a.   Agỹ Juan i-jayvu peteĩ **opygua-kue** reve.
           now Juan 3-talk   one   priest-PST   with
           'Right now, Juan is talking to an ex-priest.'

      b.   Juan i-jayvu peteĩ **opygua-rã** reve.
           Juan 3-talk   one   priest-FUT   with
           'Juan is talking to a future priest.'

Examples (7a) and (7b) illustrate the use of NTMs on nominalized complement clauses. Note that while these clauses are normally nominalized by the suffix *-a*, some speakers do not accept the use of *-rã* with this nominalizer, and prefer to use the nominalizer *va'e* instead:

(7) a. A-ikuaa Juan o-mba'eapo-**a-gue** kuee.
         1-know Juan 3-work-NMLZ-PST yesterday
         'I know that Juan was working/worked yesterday.'

     b. A-ikuaa Juan o-mba'eapo **va'e-rã** ko'erã.
         1-know Juan 3-work NMLZ-FUT tomorrow
         'I know that Juan will work tomorrow.'

Relative clauses in Mbyá are nominalized by the same clitic *va'e* and may also combine with NTMs:

(8) a. A-ikuaa ava pe Maria reve o-mba'eapo **va'e-kue** kuee.
         1-know man DOM Maria with 3-work NMLZ-PST yesterday
         'I know the man who worked/was working with Maria yesterday.'

     b. A-ikuaa ava pe Maria reve o-mba'eapo **va'e-rã** ko'erã.
         1-know man DOM Maria with 3-work NMLZ-FUT tomorrow
         'I know the man who will work with Maria tomorrow.'

NTMs are also attested in matrix clauses, where they are suffixed to the nominalizer *va'e*. *Va'e* does not appear to have any effect on the interpretation of these clauses, which I assume to be instances of insubordination (Evans 2007). I assume that *va'e* is inserted to provide a nominal host for the NTM. Indeed, NTMs cannot be suffixed to verbs, as illustrated in examples (11) and (12):

(9) A-a Posadas py **va'e-kue**.
     1-go Posadas in NMLZ-PST
     'I went to Posadas.'

(10) A-a Posadas py **va'e-rã**.
      1-go Posadas in NMLZ-FUT
      'I will go to Posadas.'

(11) Kuee, Juan o-mba'eapo-(***kue**).
      yesterday Juan 3-work-PST
      'Yesterday, Juan worked/was working.'

(12) *Ko'erã, Juan o-mba'eapo-**rã**.
      Tomorrow Juan 3-work-FUT
      'Tomorrow, Juan will work.'

Note that while NTMs on underived nouns specify the time of evaluation of the nominal property, NTMs on nominalized clauses specify the reference time of the clause. As such, NTMs on nominalized clauses are morphologically nominal but semantically verbal. Following Thomas (2014), I analyze *-kue* as a relative past tense that selects a complement of category N.[2] By contrast, *-rã* is

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[2]For an alternative analysis of NTMs in Paraguayan Guarani, see Tonhauser (2006), who argues that *-kue* is a terminative aspect.

not a tense but a modal operator with a non-past orientation. I propose that the future orientation of *-rã* observed in the previous examples originates from the use of a metaphysical modal base, which blocks its present orientation (Condoravdi 2002). The present orientation of *-rã* resurfaces in its deontic interpretation, as illustrated in (13):

(13)   Guavira ña-moatachĩ **va'e-rã**   ja-'u   aguã.
       guavira 1PL-fumigate NMLZ-FUT 1PL-eat NMLZ
       'Guavira must be fumigated in order to be eaten'   (Cadogan 1959)

3 Counterfactual modality in Mbya

3.1 Conditionals

3.1.1 Indicative conditionals

Before I discuss counterfactual conditionals, I would like to give some background on 'indicative' conditionals in Mbyá. The antecedent of an indicative conditional is related to the consequent by a switch reference marker *vy* (same subject) or *ramo* (different subject):

(14)   Context: it is late at night. If John is at home, then he is sleeping. But maybe he is not there.

       Juan o-ĩ **vy** ng-oo   py o-ke.
       Juan 3-be SS REFL-house in 3-sleep
       'If Juan is at home, then he is sleeping.'

(15)   Context: we don't know how the weather is like in Posadas and we are wondering whether Germino is at home.

       O-ky **ramo** Posadas py agỹ Germino o-ĩ   ngoo   py.
       3-rain DS   Posadas in now Germino 3-be REFL-house in
       'If it is raining in Posadas now, then Germino is at home.'

    The temporal orientation of the antecedent is free. In particular, the antecedent may describe a future event. By contrast, the consequent is non-future unless a future marker is used:

(16)   O-ky ramo Posadas py **agỹ** Germino **o-ĩ** ngoo   py.
       3-rain DS   Posadas in now Germino 3-be REFL-house in
       'If it is raining in Posadas now, then Germino is at home.'

(17)   **Kuee**   o-ky   ramo Posadas py, Germino **o-ĩ**   ngoo   py.
       Yesterday 3-rain DS   Posadas in, Germino 3-be REFL-house in
       'If it was raining in Posadas yesterday, Germino was at home.'

(18)   **Ko'erã**   o-ky   ramo Posadas py, Germino **o-ĩ-'-rã**   ngoo   py.
       Tomorrow 3-rain DS   Posadas in, Germino 3-be-NMLZ-FUT REFL-house in
       'If it rains in Posadas tomorrow, Germino will be at home.'

3.1.2 Counterfactual conditionals

Temporal orientation   The antecedent of counterfactual conditionals is marked by the particle *rire* rather than by a switch reference marker. The consequent is marked by a combination of past and future NTMs suffixed to the nominalizer *va'e* or its reduced form (glottal stop). Counterfactual conditionals are felicitous when it is common ground that their antecedent is false, contrary to indicative conditionals:

(19)   Context: we know it's sunny in Posadas today, and Germino is out there working, but …

    a.   O-ky **rire** Posadas py agỹ Germino **o-ĩ-'-rã-gue**   ng-oo   py.
        3-rain CF   Posadas in now Germino 3-be-NMLZ-FUT-PAST REFL-house in
        'If it were raining in Posadas now, Germino would be at home.'

    b.   #O-ky **ramo** Posadas py agỹ Germino **o-ĩ** ngoo   py.
        3-rain DS   Posadas in now Germino 3-be REFL-house in
        'If it is raining in Posadas now, then Germino is at home.'

Just as in indicative conditionals, the temporal orientation of the antecedent is free. Counterfactual conditionals differ from indicative conditionals insofar as the temporal interpretation of their consequent is also free, rather than non-future:

(20)   O-ky rire Posadas py **kuee**   Germino **o-ĩ-'-rã-gue**   ng-oo   py.
       3-rain CF Posadas in yesterday Germino 3-be-NMLZ-FUT-PAST REFL-house in
       'If had rained in Posadas yesterday, Germino would have been at home.'

(21)   O-ky rire Posadas py **ko'erã**   Germino **o-ĩ-'-rã-gue**   ng-oo   py.
       3-rain CF Posadas in tomorrow Germino 3-be-NMLZ-FUT-PAST REFL-house in
       'If rained in Posadas tomorrow, Germino would be at home.'

Counterfactuality   Like English CFCs, Mbyá CFCs do not entail the negation of their antecedent and/or prejacent. That is to say, the counterfactual inference triggered by these conditionals can be canceled, as shown by the following example, adapted from Anderson (1951):

(22)   João o-juka rire Pedro pe   o-ĩ-'-rã-gue   'uguy i-kamixa re.
       João 3-kill CF Pedro DOM 3-be-NMLZ-FUT-PAST blood 3-shirt   on
       'If João had killed Pedro, there would be blood on his shirt.'

       O-ĩ i-kamixa re 'uguy, ha'e ma o-juka ae   Pedro pe.
       3-be 3-shirt   on blood CONJ TOP 3-kill certainly Pedro DOM
       'There is blood on his shirt, so he must have killed him.'

Simple and double past   English counterfactual conditionals may be inflected in the simple past tense or in the past perfect. Let us call these constructions Simple Past Counterfactual Conditionals (SPCFCs) and Double Past Counterfactual Conditionals (DPCFCs):

(23)   John hasn't arrived yet. If he arrived later today, he wouldn't miss the talk.

(24)   John will arrive tomorrow. If he arrived later today (instead), he wouldn't miss the talk.

(25)   John arrived yesterday. #If he arrived later today (instead), he wouldn't miss the talk.

(26)   John arrived yesterday. If he had arrived later today (instead), he wouldn't have missed the talk.

English SPCFCs are infelicitous when their antecedent or its presuppositions are incompatible with known facts that have already taken place by the time of utterance, as illustrated by the contrast between (24) and (25).

There is no morphological contrast equivalent to that between SPCFCs and DPCFCs in Mbyá. Mbyá CFCs are felicitous in contexts that license English SFCFCs as well as in those that license English DPCFCs:

(27)   Xe-ru   o-mano va'e-kue   o-axa va'e-kue   ara   yma   re…
         1-father 3-die   NMLZ-PAST 3-pass NMLZ-PAST time long.ago OBL
         'My father died last year.'

         O-mano **rire** ara   pyau o-u-a   re, o-jou-**'-rã-gue**   xe-ra'yxy.
         3-die   CF   time new 3-come-NMLZ OBL 3-meet-NMLZ-FUT-PAST 1-wife
         'If he had died next year, he would have met my wife.'

(28)   Xee a-jau   França py.
         1   1-born France in
         'I was born in France.'

         A-jau   rire Argentina py, xe-ayvu-'-rã-gue   Espanhol py.
         1-born CF   Argentina in, 1-speak-NMLZ-FUT-PAST Spanish   in.
         'If I had been born in Argentina, I would have spoken Spanish.'

3.2   Stand alone counterfactual modals

CF marking is also attested outside of conditional constructions. CF marking is notably attested in simple independent clauses, where it conveys that the event that is described by the sentence did not take place, is not taking place, or will not take place, contrary to earlier expectations:

(29)   Context: there was a rainy weather forecast for today, but it has been a sunny day so far.

O-ky va'e-rã va'e-kue ange.
3-rain NMLZ-FUT NMLZ-PAST today
'It should be raining today.'

As in conditional sentences, the temporal orientation of SACFs is free. That is to say, a SACF sentence can describe an event that was expected to take place in the past, in the present or in the future of the time of utterance:

(30) O-ky va'e-rã va'e-kue kuee.
3-rain NMLZ-FUT NMLZ-PAST yesterday
'It should have rained yesterday.'

(31) O-ky va'e-rã va'e-kue agỹ.
3-rain NMLZ-FUT NMLZ-PAST now
'It should be raining now.'

(32) Guillaume o-o va'e-rã va'e-kue Rio py ko'erã, ha'e ramo ta'vy o-o-ta
Guillaume 3-go NMLZ-FUT NMLZ-PAST Rio in tomorrow, it DS MIR 3-go
   amboae semana.
   other week
'Guillaume should have gone to Rio tomorrow, but eventually he will go next week.'

Like CFCs, SACFs do not entail the negation of their prejacent: the counterfactual inference that they trigger can be canceled:

(33) Nd-a-ikuaa-i o-ky pa Rio py kuee, ha'e ramo o-ky va'e-rã va'e-kue.
NEG-1-know-NEG 3-rain Q Rio in yesterday it DS 3-rain NMLZ-FUT NMLZ-PAST
'I don't know if it rained in Rio yesterday, but it should have rained.'

3.3 Nominal counterfactuality

CF marking is also attested on noun phrases, where it conveys that the referent of the NP does not have the property described by the NP, contrary to earlier expectations:

(34) Context: João was supposed to become the new leader of the community tomorrow, but he died yesterday.

Nhande-ruvixa-rã-gue o-mano kuee.
1PL-leader-FUT-PAST 3-die yesterday
'The person who was going to be our leader died yesterday.'

(35) Context: I was supposed to get married to Elena, but she got married to João instead.

Xe-rembireko-rã-gue o-menda João re.
1-wife-FUT-PAST   3-marry João OBL
'The person who was going to be my wife got married to João.'

In the same way that indicative conditionals are infelicitous in contexts that license the use of CFCs, unmodified NPs are infelicitous in contexts that license the use of CFNPs:

(36)   Context: João was supposed to become the new leader of the community tomorrow, but he died yesterday.

?Nhande-ruvixa o-mano kuee.
1PL-leader   3-die   yesterday

(37)   Context: I was supposed to get married to Elena, but she got married to João instead.

?Xe-rembireko o-menda João re.
1-wife   3-marry João OBL

The counterfactual inference triggered by CFNPs can also be canceled, although I found it harder to construct examples that consultants accepted. The following example was judged acceptable:

(38)   Context: I was supposed to get married to Elena. The wedding was almost called off, but eventually we got married.

A-menda xe-rembireko-rã-gue re   kuee.
1-marry 1-wife-FUT-PAST   with yesterday.
'Yesterday, I married the person who was going to be my wife.'

4   Unified analysis: past as past

In this section, I explore the hypothesis that the NTM *-kue* is uniformly interpreted as a relative past tense in CF constructions in Mbyá.

4.1   Stand Alone Counterfactual Modals

I propose to analyze CF marking simply as a form of future in the past.[3] More precisely, I propose that the future NTM *-rã* denotes a universal modal operator. In CF constructions, *-rã* is given a meta-physical modal base, which forces a future orientation (for a discussion of the temporal orientation of metaphysical modals, see Condoravdi 2002). In SACFs, *-rã* is interpreted with a stereotypical ordering source. The past NTM is interpreted as a relative past tense. *-Kue* is anchored to the reference time t_0, which is a contextually salient non-future time:

(39) $[\![\text{rã}]\!]^{g,c} = \lambda f.\lambda g.\lambda P.\lambda t.\lambda w.\forall w'[w' \in Max_{h(w)(t)}(f(w)(t)) \rightarrow \exists t'[t' \geq t \wedge P(t')(w')]]$

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[3]For a similar analysis of Paraguayan Guarani *-ta*, see Tonhauser (2011a)

(40) $[\![\text{-kue}]\!]^{g,c} = \lambda P.\lambda t.\lambda w.\exists t'[t' < t \wedge P(t')(w)]$

(41) $[\![\text{VP va'e-rã}_{i,j}\ \text{va'e-kue}]\!]^{g,c} =^4$
$\lambda t.\lambda w.\exists t'[t' < t \wedge \forall w'[w' \in Max_{h(w)(t')}(f(w)(t')) \rightarrow \exists t''[t'' \geq t' \wedge [\![\text{VP}]\!]^{g,c}(t'')(w')]$

(42) $[\![\text{O-ky } t_0 \text{ va'e-rã}_{i,j}\ \text{va'e-kue ange}]\!]^{g,c}(w) =$
$\exists t[t < g(0) \wedge \forall w'[w' \in Max_{h(w)(t)}(f(w)(t)) \rightarrow \exists t'[t' \geq t \wedge \mathbf{rain}(w')(t') \wedge \mathbf{today}(t')]$
True in w at t_0 iff there was a time t before t_0 such that the maximally normal continuations of w after t all lead to an event of raining at some sub-interval t' of the day of utterance.

Because of the use of a stereotypical ordering source, *VP va'e-rã va'e-kue* does not entail that the event described by the VP happens in the actual world. However, *VP va'e-rã va'e-kue* does entail that there is a time in the past of t_0 at which it was expected that this event would happen.

Note that it is unclear whether *va'erã va'ekue* triggers a counterfactual implicature, and how this implicature could arise. In the proposed analysis, such an implicature could not arise by exploiting the maxim of quantity (*pace* Tonhauser 2011a). A quantity implicature would arise if $[\![\text{va'erã va'ekue}]\!]^{g,c}(p)$ were entailed by its prejacent p. Assuming that the prejacent of a modal sentence is one of its alternatives, an assertion of $[\![\text{va'erã va'ekue}]\!]^{g,c}(p)$ would then trigger a Gricean quantity implicature (Grice 1975) leading to the conclusion that the speaker does not believe that p. However, p does not entail $[\![\text{va'erã va'ekue}]\!]^{g,c}(p)$, since the actual world may not be one of the most 'normal' worlds in the domain of $[\![\text{va'erã va'ekue}]\!]^{g,c}$. Therefore, it may be the case that p is true in the actual world but abnormal, in which case $[\![\text{va'erã va'ekue}]\!]^{g,c}(p)$ will be false. Likewise, $[\![\text{va'erã va'ekue}]\!]^{g,c}(p)$ does not entail p, since p may follow from the most normal course of events but may still be false in the actual world.

It is easier to derive an ignorance implicature from an assertion of $[\![\text{va'erã va'ekue}]\!]^{g,c}(p)$, using the Gricean maxim of relevance. Assume that the question under discussion (QUD) that is addressed by an assertion of $[\![\text{va'erã va'ekue}]\!]^{g,c}(p)$ is the question $?p$ whether p is true or false. The most relevant answers to this question are p and $\neg p$, but other answers may be relevant, to the extent that they make it more or less likely that p or $\neg p$.[5] In particular, if speakers assume that the actual world is more likely to be normal than not, then learning that $[\![\text{va'erã va'ekue}]\!]^{g,c}(p)$ is true raises the likelihood that p is true and decreases the likelihood that $\neg p$, therefore $[\![\text{va'erã va'ekue}]\!]^{g,c}(p)$ is positively relevant to p and negatively relevant to $\neg p$. As a consequence, if the QUD is $?p$, $[\![\text{va'erã va'ekue}]\!]^{g,c}(p)$ is not as relevant an answer as either p or $\neg p$. Under the assumption that the speaker is cooperative, her assertion should therefore trigger an implicature that she is not in a position to assert either p or $\neg p$, which most likely means that she doesn't know whether p or $\neg p$.

I would like to suggest that $[\![\text{va'erã va'ekue}]\!]^{g,c}(p)$ never triggers an implicature that $\neg p$. At best, it triggers an ignorance implicature. The impression that it triggers a counterfactual implicature may be due to the fact that an assertion of $[\![\text{va'erã va'ekue}]\!]^{g,c}(p)$ is not as informative as p, given $?p$ as the QUD. Therefore, we expect that $[\![\text{va'erã va'ekue}]\!]^{g,c}(p)$ will rarely if at all be uttered in a context where the truth of p is under discussion, while it may be uttered in a context where $\neg p$ is common ground. In addition, when p is common ground, the assumption that the actual course of events is maximally normal unless there evidence of the contrary makes an assertion of $[\![\text{va'erã va'ekue}]\!]^{g,c}(p)$ under-informative.

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[4]The indices i and j are free variables. For conciseness, we abbreviate $g(i)$ as h and $g(j)$ as f.
[5]See Russell (2012) for a discussion of probabilistic relevance that could be used to formalize this reasoning.

4.2 Nominal counterfactuality

This analysis of CF marking in SACFs carries over straightforwardly to CFNPs. The NP *tuvixarãgue* ('leader-CF') denotes the set of individuals who became leaders in the most normal continuations of the world of evaluation, where the branching point is some time that precedes the time of evaluation of the NP. Accordingly, the NP may be used to describe individuals who are not leaders at its time of evaluation:

(43) $[\![\text{tuvixa}]\!]^{g,c} = \lambda x.\lambda t.\lambda w.\textbf{leader}(x)(t)(w)$

(44) $[\![\text{rã}_{i,j}\ \text{gue}]\!]^{g,c} =$
$\lambda P.\lambda t.\lambda w.\exists t'[t' < t \wedge \forall w'[w' \in Max_{h(w)(t')}(f(w)(t')) \rightarrow \exists t''[t'' \geq t' \wedge P(t'')(w')]]]$

(45) $[\![1\ [[[\text{tuvixa}\ t_1]\ \text{rã}_{h,f}]\ \text{gue}]]\!]^{g,c}(t)(w) =$
$\lambda x.\exists t'[t' < t \wedge \forall w'[w' \in Max_{h(w)(t')}(f(w)(t')) \rightarrow \exists t''[t'' \geq t' \wedge \textbf{leader}(x)(t'')(w')]]]$

4.3 Counterfactual Conditionals

This analysis of CF marking can also be extended to counterfactual conditionals. Following Kratzer (1981, 1991), I assume that antecedents of conditionals restrict a modal operator in the matrix clause. In the spirit of von Fintel (1994), I assume that the antecedent is a sentential adjunct that is co-indexed with the modal base variable of the matrix modal. In order to account for the free temporal orientation of both clauses, I will assume that the evaluation time of the antecedent is bound by a covert non-past-operator, while the evaluation time of the consequent is bound by the modal operator. Both operators are anchored to the reference time of the sentence (remember that the interval $g(0)$ denoted by t_0 must precede or overlap the time of utterance).

(46) $[\![\text{rire}_i\ S, S']\!]^{g,c}(w)(t) = [\![S']\!]^{g[\lambda w.g(i)(w)(t) \cup \{\lambda w.[\![p]\!](w)(t)\}/i],c}$

(47) $[\![\text{Op}]\!]^{g,c} = \lambda P.\lambda t.\lambda w.\exists t'[t' \geq t \wedge P(t')(w)]$

The counterfactual conditional (48) is parsed as in (49) and interpreted as in (50):

(48) O-ky **rire** Posadas py agỹ Germino **o-ĩ-'-rã-gue** ng-oo py.
3-rain CF Posadas in now Germino 3-be-NMLZ-FUT-PAST REFL-house in
'If it were raining in Posadas now, Germino would be at home.'

(49) [t_0 [rire$_i$ Op oky Posadas py agỹ] [-kue [-rã$_{i,j}$ [NMLZ [Germino oĩ ngoo py]]]]]

(50) $[\![(49)]\!]^{g,c} =$
$\lambda w.\exists t'[t' < g(0) \wedge \forall w'[w' \in Max_{h(w)(t')}(f(w)(t') \cup \{\lambda w.\exists t''[t'' \geq t' \wedge \textbf{rain}(w)(t'')] \wedge C(t'')\})$
$\rightarrow \exists t''[t'' \geq t' \wedge \textbf{at\_home}(t'')(w')(\textbf{Germino}) \wedge C(t'')]]$

Here we can take the ordering source $h(w)(t)$[6] to order possible worlds with respect to their similarity to the evaluation world w, and the modal base $f(w)(t)$ to be historical, i.e. to select the set of worlds that are identical to w up to t. In (50), the restriction of the modal quantifier is included in the set of worlds that are identical to the evaluation world up to some time t' before RT, and in which it is raining at t' or afterwards. Therefore, neither the antecedent nor the consequent are entailed to be true in the world of evaluation.

This analysis predicts that the same logical form could be translated into English as a SPCF or as a DPCF. Indeed, let us assume with von Stechow and Grønn (2008) that the reason for the unacceptability of (51), repeated from (25), is that the event of John's arrival that is under discussion took place before the day of utterance in all the worlds in the modal base of *would*. As a consequence, if the modal operator is evaluated at the time of utterance, the union of the modal base with the antecedent of the conditional has an empty intersection. This explains the unacceptability of the sentence, given the ban on quantifiers with empty domains in natural languages. Note that the inclusion in the modal base of the proposition that John arrived yesterday follows from the assumption that the modal base of *would* is metaphysical and is evaluated at the time of utterance:

(51) John arrived yesterday. #If he arrived later today (instead), he wouldn't miss the talk.

By contrast, in the proposed analysis of CF marking in Mbyá, the time of evaluation of *-rã* is some interval in the past of the evaluation time $g(0)$, which is itself a time that precedes the time of utterance or overlaps it. As a consequence, we can evaluate the modal base of *-rã* in (52) with respect to a time that precedes the death of the speaker's father, which explains the felicity of the sentence:

(52) Xe-ru   o-mano va'e-kue   o-axa va'e-kue   ara   yma   re…
      1-father 3-die   NMLZ-PAST 3-pass NMLZ-PAST time long.ago OBL
      'My father died last year.'

      O-mano rire ara   pyau o-u-a   re, o-jou-'-rã-gue   xe-ra'ychy.
      3-die   CF   time new 3-come-NMLZ OBL 3-meet-NMLZ-FUT-PAST 1-wife
      'If he$_4$ had died next year, he$_4$ would have met my wife.'

(53) $[\![(51)]\!]^{g,c} =$
      $\lambda w.\exists t'[t' < g(0) \wedge \forall w'[w' \in Max_{h(w)(t')}(f(w)(t') \cup \{\lambda w.\exists t''[t'' \geq t' \wedge \mathbf{died}(w)(t'')(g(4)) \wedge t'' \subseteq \mathbf{next\text{-}year}(c)] \wedge C(t'')\}) \rightarrow \exists t''[t'' \geq t \wedge \mathbf{meet}(t'')(w')(\iota x.\mathbf{wife}(x)(s_c))(g(4)) \wedge C(t'')]]]$

4.4 Taking stock

We have arrived at a unified analysis of CFCs, SAFCs, and CFNPs, in which 'counterfactual modality' is analyzed as future oriented modality whose evaluation time is shifted in the past by *-kue*. Although this analysis is adequate for Mbyá, it cannot be extended to English (and more generally to Germanic and Romance languages).

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[6]Remember that we adopted the convention to abbreviate $g(i)$ as h and $g(j)$ as f.

5 Alternative analysis

5.1 English CFCs

The analysis of CFCs presented in the previous section over-generates in English. Firstly, 'simple past' CFs are incorrectly predicted to be felicitous in the same contexts as 'double past' CFs. Indeed, since the analysis posits that the past tense in the consequent is interpreted temporally and shifts the time of evaluation of the modal operator in the past of the reference time, it should be possible to interpret the modal base with respect to a time that precedes the death of the speaker's father in example (54):

(54) Context: the speaker's father died last year.
#If he$_4$ died next year, he$_4$ would meet my wife.

(55) PRES [[if he died next year] PAST WOLL [he meet my wife]]

(56) $\llbracket(55)\rrbracket^{g,c} =$
$\lambda w.\exists t'[t' < t_c \wedge \forall w'[w' \in Max_{h(w)(t')}(f(w)(t') \cup \{\lambda w.\exists t''[t'' \geq t' \wedge \mathbf{died}(w)(t'')(g(4)) \wedge t'' \subseteq \mathbf{next\text{-}year}(c) \wedge C(t'')]\}) \rightarrow \exists t''[t'' \geq t \wedge \mathbf{meet}(t'')(w')(\iota x.\mathbf{wife}(x)(s_c))(g(4)) \wedge C(t'')]]]$

Ippolito (2013) demonstrates that this issue can be addressed without adopting a fake tense analysis. However, it is important to note that this problem does not arise in Mbyá.

Secondly, since the time of evaluation of the matrix VP is bound by a future oriented operator whose time of evaluation is itself shifted in the past of the time of utterance, we predict incorrectly that it should be possible to describe past events in the consequent of simple past CFs:

(57) *If John left tomorrow, he would visit us yesterday.

(58) PRES [[if John leave tomorrow] PAST WOLL [he visit us yesterday]]

(59) If John had left tomorrow, he would have visited us yesterday.

Current analyses of English CFCs do not face these problems, because they assume that the past tense in SPCFs is not interpreted standardly. Ippolito (2013) assumes that the past tense shifts the time of accessibility of a modal WOLL in the past without affecting the time of evaluation of the antecedent and the consequent of the conditional. Others assume that the past tense is uninterpreted or else interpreted in the modal domain (see a.o. Iatridou 2000; Schulz 2014; von Stechow and Grønn 2008). In the rest of the paper, I will discuss the possibility to adopt a fake tense analysis in Mbya.

5.2 Fake past tense in CFC

For simplicity, I will assume with von Stechow and Grønn (2008) that the first layer of past tense in CFCs is uninterpreted. An analysis of *-kue* as a modal remoteness marker would only add a presupposition that the speaker does not expect the actual world to be in the domain of quantification of the modal operator (see Schulz 2014). This is not relevant for our current purposes. Assuming that *-kue* is uninterpreted, Mbya CFCs are interpreted as follows:

(60) O-ky **rire** Posadas py agỹ Germino **o-ĩ-'-rã-gue**   ng-oo   py.
      3-rain CF   Posadas in now Germino 3-be-NMLZ-FUT-PAST REFL-house in
      'If it were/had been raining in Posadas now, Germino would be/would have been at home.'

(61)   [t_0 [rire$_i$ Op oky Posadas py agỹ] [-kue [-rã$_{i,j}$ [NMLZ [Germino oĩ ngoo py]]]]

(62) $\llbracket(61)\rrbracket^{g,c} =$
$$\lambda w.\forall w'[w' \in Max_{h(w)(g(0))}(f(w)(g(0)) \cup \{\lambda w.\exists t'[t' \geq g(0) \wedge \mathbf{rain}(w)(t') \wedge C(t')]\})$$
$$\rightarrow \exists t'[t' \geq g(0) \wedge \mathbf{at\_home}(t')(w')(\mathbf{Germino}) \wedge C(t')]]$$

Whether this sentence is interpreted like a SPCFC or like a DPCFC depends on the value of $g(0)$. Indeed, the antecedent and its presuppositions must be consistent with the modal base of *-rã*, which contains all the worlds that are identical to the world of evaluation up to $g(0)$. As a consequence, we predict that it is possible to use a CFCs in a context that would require the use of a DPCFC in English, whenever $g(0)$ precedes the time of utterance. In English, this would require embedding the CFC under a second layer of past tense. This is not necessary in Mbyá, even if we assume that *-kue* is uninterpreted in CFCs, since the reference time $g(0)$ of matrix sentences may be a past time. In other words, it is the fact that tenseless sentences have a non-future interpretation in Mbyá that explains the absence of contrast between SPCFCs and DPCFCs.

5.3   Fake tense outside conditionals?

The fake tense analysis of CF marking does not raise any issue with matrix SACFs, as illustrated by the following example:

(63) $\llbracket$O-ky t_0 va'e-rã$_{f,h}$ va'e-kue ange$\rrbracket^{g,c}(w) =$
$$\forall w'[w' \in Max_{(h(w))(g(0))}(f(w)(g(0))) \rightarrow \exists t'[t' \geq g(0) \wedge \llbracket\mathbf{rain}\rrbracket^{g,c}(t')(w') \wedge \mathbf{today}(t')]]$$
True in w at t_0 iff the maximally normal continuations of w after t_0 all lead to an event of raining at some sub-interval t' of the day of utterance.

However, it is unclear whether this analysis makes correct predictions for embedded SACFs. To see this, note first that for some speakers, the reference time of clausal complements of verbs of attitude and speech report is bound by the embedding verb (see Thomas 2014). As a consequence, we predict that the future oriented modal *-rã* in an embedded SACF should locate the embedded event time no earlier than the matrix event time. Therefore, it should be impossible to use a SACF to describe events that should have occurred before the matrix event time. We expect then that speakers who prefer a simultaneous interpretation of bare verbs in complement clauses should reject sentences like the following:

(64)   Ange, Maria o-exa ra'u o-ky va'e-rã   va'e-kue   kuee.
      Today, Maria 3-see sleep 3-rain NMLZ-FUT NMLZ-PAST yesterday
      'Maria dreamed today that it should have rained yesterday.'

I was only able to test this prediction with one consultant, who judged this sentence acceptable. Unfortunately, this consultant also accepts non-simultaneous interpretations of bare verbs in complement clauses, which means that his judgments do not falsify the fake tense analysis. More fieldwork is required to assess the validity of this analysis.

It is also unclear whether the fake tense analysis can be extended to nominal uses of CF marking. Consider example (34), repeated here as (65):

(65)   Context: João was supposed to become the new leader of the community tomorrow, but he died yesterday.

Nhande-ruvixa-rã-gue o-mano kuee.
1PL-leader-FUT-PAST   3-die   yesterday
'The person who was going to be our leader died yesterday.'

According to a 'fake tense' analysis, *-ruvixarãgue* should be interpreted as follows:

(66) $[\![1\ [[[\text{-ruvixa t}_1]\ \text{rã}_{h,f}]\ \text{gue}]]\!]^{g,c}(t)(w) =$
$\lambda x.\forall w'[w' \in Max_{h(w)(t)}(f(w)(t)) \rightarrow \exists t'[t' \geq t \wedge \mathbf{leader}(x)(t')(w')]]]$

In order to derive the correct interpretation of (65), the evaluation time t of this NP should be interpreted as preceding the reference time of the sentence. It is well know that NPs do not have to be evaluated at the reference time in English sentences, as illustrated by this famous example from Enç (1981):

(67)   Every fugitive is now in Jail.

In similar constructions in Mbyá, the use of a nominal past tense is strongly preferred (see Thomas 2014). This suggests that *-kue* must be interpreted as a past tense in order to shift the evaluation time of the NP in the past of the reference time, which challenges the 'fake tense' analysis of CFNPs. However, it could be argued that this effect is due to a competition between bare NPs and NPs modified by *-kue*, which is inactive in CFNPs, where *-kue* takes on a modal value. Again, more fieldwork (and more theoretical investigation as well) is required to explore the consequences of a fake past tense analysis for this type of CF construction.

6   Conclusion

I have discussed the interpretation of past over future morphology in Mbyá. The first conclusion of this study is that the counterfactual interpretation of this construction, which is commonly attested on verbs across languages, is also attested in the nominal domain in Mbyá. This strengthens analyses of *-kue* and *-rã* as nominal tenses in Guarani languages (Thomas 2014). I have then discussed two possible analysis of the past tense in such constructions. It appears that both a modal and a temporal analysis of the past tense are possible, although more fieldwork is required to assess the viability of a fake past tense analysis across the three types of counterfactual constructions discussed in this paper.

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