Nominal tense? The meaning of Guaraní nominal temporal markers

Judith Tonhauser
Department of Linguistics, The Ohio State University
judith@ling.osu.edu

Draft of January 2007
Please do not cite

*The material presented here is based on my Ph.D. dissertation (Tonhauser 2006). For helpful comments and constructive criticism, I thank David Beaver, John Beavers, Maria Bittner, Cleo Condoravdi, Ashwini Deo, David Dowty, Itamar Francez, Paul Kiparsky, Andrew Koontz-Garboden, Beth Levin, Craige Roberts, as well as the audiences at the 80th and 81st Annual Meetings of the Linguistic Society of America, at the conference on Semantics of Under-represented Languages in the Americas III, and at colloquia at the University of California (San Diego and Santa Cruz), Northwestern University, The Ohio State University, and the University of Texas (Austin). All errors are my own.
Abstract

Paraguayan Guaraní has nominal markers that affect the temporal interpretation of the noun phrase they attach to. On the basis of data collected during recent fieldwork in Paraguay, this paper explores the lexical semantic, semantic and discourse properties of these nominal temporal markers, and develops a semantic analysis that accounts for their meaning and use. The paper then addresses the claim (made e.g. in Nordlinger and Sadler 2004 (Language, Dec. 2004)) that such markers are nominal past and future tenses. A comparison of the properties of verbal temporal markers to those of the Guaraní nominal markers reveals that the Guaraní nominal markers share few of the properties of verbal tenses, and, hence, should not be called nominal tenses. The paper concludes by addressing the implications of these findings for theories of temporality.

Keywords: The meaning of Guaraní nominal temporal markers, properties of tense, the existence of nominal tenses.
A central question in the temporal interpretation of noun phrases concerns the location of the time relative to which a noun phrase is interpreted. Although theories of noun phrase temporality (Enç 1981, 1986, Musan 1995, 1999, Tonhauser 2002) differ in detail, there is consensus that the temporal interpretation of noun phrases in English and German, the two languages that such theories have examined,\(^1\) is contextually determined. To illustrate, consider the bold-faced noun phrases in the examples in (1).

(1) a. **Every fugitive** is now in jail. (Enç 1981:38)
    b. **My father** was born in 1945. (Tonhauser 2006:167)

The tense information on the verbal predications in (1) constrain the time at which the predications are interpreted: in (1a), be in jail is interpreted at the utterance time, and be born in (1b) is interpreted at a time prior to the utterance time. In contrast, no tense information is available for the time at which the noun phrases every fugitive and my father are interpreted. In (1a), the noun phrase every fugitive is interpreted at a time prior to the utterance time, i.e. the individuals were fugitives prior to being in jail. In (1b), the noun phrase my father is interpreted at a time that overlaps with the utterance time, while the predication be born is interpreted at the time denoted by the temporal adverb in 1945. As evidenced by the examples in (1), the time at which a noun phrase is interpreted, which I refer to here as the ‘nominal time’ \(t_n\), need not be the time at which the verb (or proposition) is interpreted. Since tense markers are not realized with English (or German) noun phrases, theories of the temporal interpretation of noun phrases assume that the location of the nominal time \(t_n\) is contextually determined.

Recently, Nordlinger and Sadler (2004:§2) (Language, Dec. 2004) has pointed to around 15 languages (and language families) that have nominal temporal markers, i.e. nominal markers that affect the temporal interpretation of the noun phrase they attach to. Such nominal markers provide empirical evidence for a temporal dimension of the interpretation of noun phrases. The two nominal temporal markers of Paraguayan Guaraní, one of the languages discussed in Nordlinger and

\(^1\)See Demirdache (1996) for a discussion of the temporal interpretation of noun phrases in St’at’imcets.
Sadler (2004), are illustrated in the examples in (2).²

(2)  

a. Jagua-ndadje o-kuaru o-ña akamby-pe’a-há-pe, yma dog-SAY A3-urinate A3-spread.legs-open-NOM-PE long.time.ago 
ho’a-gui-ve hi’-ári pare-kue, petei fárра-há-pe. A3.fall-GUI-VE 3-on wall-KUE, one party-NOM-PE

‘It is said that dogs urinate with their legs spread open (one up) because a long time ago an old wall fell onto a dog, at a party.’ [P:106]

b. O-ho pеtеi arrió o-jeruté-vo la h-embireko-ră-re. A3-go one man A3-ask.for-at LA 3-wife-RA-RE

‘A man went to ask for his future wife.’ [P:57]

In (2a), the noun phrase pare ‘wall’ is marked with the nominal temporal marker –kue to indicate that what fell onto the dog was a (proper) wall in the past, and was a crumbling and shaky one, an old wall, when it fell onto the dog. In contrast to –kue, which has a past time oriented meaning, the marker –ră has a future time oriented meaning. (2b), where –ră is realized on the possessive noun phrase h-embireko ‘his wife’, conveys that the woman is not the man’s wife at the time of asking but that she might become his wife at a time in the (relative) future. The examples in (2) suggest that Guaraní –kue and –ră express a temporal precedence relation: they specify that the property (or relation) denoted by the nominal predicate is true of the individuals denoted by the noun phrase prior and subsequent to another time, respectively.

The existence of nominal temporal markers in the languages described in Nordlinger and Sadler

²Paraguayan Guaraní is spoken by about four million people in Paraguay and neighboring countries. Unless noted otherwise, the Guaraní examples presented in this paper were collected by the author during fieldwork in Paraguay in 2004 and 2005. I thank my consultants [names deleted for review] for their time and efforts. Examples marked [P] are taken from Aguilera (1998), those marked [C] are from my corpus, and those marked [E] were elicited from native speakers. I use the following glosses: A1/2/3 = 1st/2nd/3rd person set A crossreference marker, –AG = agentive, B1/2 = 1st/2nd person set B crossreference marker, –DIM = diminutive, excl = exclusive, –GUI = ablative, incl = inclusive, –KUE = nominal temporal marker, LA = borrowed Spanish definiteness marker la, –MA = perfect aspect, NEG = negation, –NOM = (locative) nominalizer, –PE = spatial/temporal adjunct and non-A argument marker, pl = plural, –PST = past conditional marker, –RA = nominal temporal marker, –RC = relative clause marker, –RE = postposition, –SAY = reportative evidential, sg = singular, –TA = future time oriented temporal marker, –VE = postposition.
(2004:§2) gives rise to the question of what the meaning of such markers is and how they contribute to the temporal interpretation of noun phrases. Could such markers provide overt evidence about how the nominal time \( t_n \) is located? Previous literature on nominal temporal markers has proposed that they are nominal tenses (e.g. Burton (1997) for Halkomelem, Lecarme (1996, 1999) for Somali, Haude (2004) for Movima, and Nordlinger and Sadler (2004:§2) for about 15 languages). While this proposal has not been made (formally) explicit, calling the markers nominal tenses suggests that they behave like verbal tenses in that they contribute to the location of the nominal time, just like verbal tenses locate the time at which a verb (or proposition) is interpreted (cf. the discussion of the examples in (1) above). Unfortunately, the proposal is often made on the basis of very little empirical evidence (e.g. for the nominal markers of Nambiquara in Nordlinger and Sadler (2004) or for those of Halkomelem in Burton (1997) and Wiltschko (2003)) and no analysis is provided that identifies the extent to which the nominal temporal markers behave like verbal tenses and hence merit being called nominal tenses.

This paper has two goals. The first is to explore in detail the meaning of the nominal temporal markers of Guaraní on the basis of data collected during recent fieldwork in Paraguay. In section 1, I examine the basic meaning properties of the two nominal temporal markers, the lexical semantic restrictions on them with nouns of different semantic classes, their meaning in discourse, and their contribution to the temporal interpretation of noun phrases. This study constitutes the first detailed semantic study of nominal temporal markers in any language. One of the results of the study is that the Guaraní markers do not locate the nominal time \( t_n \). In section 2, the claim that the Guaraní markers are nominal tenses (Liuzzi 1987, Liuzzi and Kirtchuk 1989, Nordhoff 2004, Nordlinger and Sadler 2004) is re-assessed using the semantic analysis developed in section 1. After identifying properties of verbal tense markers and comparing them to the properties of the Guaraní nominal temporal markers, I propose that the nominal markers do not share sufficient properties with verbal tenses to merit being called nominal tenses. The paper concludes in section 3 by addressing the implications of these findings for theories of the temporal interpretation of noun phrases: I contend that there is currently no reliable evidence from any language for the existence of nominal tenses and that, hence, the claim that the temporal interpretation of noun
phrases involves a nominal tense relation (e.g. Lecarme 1996, Wiltschko 2003) is not empirically supported.

1 The meaning of the Guaraní nominal temporal markers

The Guaraní nominal temporal markers –kue and –rā are productive only with Guaraní nouns, a subset of the set of stative predicates that denote properties of individuals or relations between individuals. For instance, they are compatible with the stative predicate óga ‘house’ but not with the stative predicate asẽ ‘cry’ since the latter is a property of eventualities (see Tonhauser 2006: ch 5 for details). The two markers are completely unrestricted with respect to the semantic role or grammatical function of the noun phrase they attach to, as well as with respect to whether the noun phrase is an indefinite, possessive, demonstrative or quantificational noun phrase. This is illustrated for –rā in the examples in (3). (For comparable data with –kue see Tonhauser (2006).)

(3) a. O-ho peteĩ arriéro o-geruré-vo la h-embireko-rā-re.
   A3-go one man A3-ask.for-at LA 3-wife-RA-RE
   ‘A man went to ask for his future wife.’ [P:57]

b. Ko mbo’e-ha-ra-rā o-amba.apo heta.
   this teach-NOM-RA A3-work much
   ‘This future teacher works a lot.’ [E]

c. O-jeity pé-icha tujú-pe yvyra po’i-mi-mi puente-rā.
   A3-throw that-like mud-PE wood thin-DIM-DIM bridge-RA
   ‘He threw the thin wood into the mud as a bridge.’ [P:20]

d. Context: When she comes close, tell her that you want to marry her.
   kuña-itē ko ne-rembireko-rā.
   woman-very this B2sg-wife-RA
   ‘Your future wife is a real woman.’ [C]

e. Avave doytor-rā n-oi-pytyvo-i pe h-asỹ-va-pe.
   no doctor-RA NEG-A3-help-NEG that 3-sick-RC-PE
   ‘No future doctor helped the sick person.’ [E]
In (3a), repeated from (2b), –r̃a occurs on the O-argument (using Dixon’s (1979) terminology) h-embereko ‘his wife’, a possessive noun phrase, and in (3b), –r̃a is realized on the demonstrative noun phrase komba’ehara ‘this teacher’, the S-argument of the intransitive predicate mba.apo ‘work’. In (3c), the noun phrase puente ‘bridge’ on which –r̃a is realized is an adjunct and not marked for (in)definiteness. The example in (3d) illustrates –r̃a on the quantificational noun phrase avave doytor ‘no doctor’.

In this paper, I use English adjectives former and future, as well as the marker ex–, to translate Guaraní examples that feature –kue and –r̃a. It is important, however, to point out that there are significant differences in meaning and use between the respective expressions in the two languages. For one, there are English examples in which former or future are not used, but the corresponding Guaraní examples feature –kue or –r̃a. (4) is such an example:

(4) Context: The little boy wants to go on an adventure and tells his dog:

Petei jey he’i h-yamba jagua-pe: “Ja-ha ja-heka ŋane-iru-r̃a.”
one time A3.say 3-animal dog-PE A1pl.incl-go A1pl.incl-search B1pl.incl-friend-RA

‘One time he said to his pet dog: “Come on, let’s go look for a friend for us.”

The Guaraní noun phrase ŋane-iru ‘our friend’ is obligatorily marked with –r̃a in this discourse context to indicate that, at the past time at which the boy talked to the dog, the individual denoted by the noun phrase is not yet the boy and the dog’s friend. The English translation does not feature the adjective future (and Let’s go and look for our future friend is odd in English).

A second difference between the Guaraní markers and English former and future is their respective frequency of occurrence in naturally occurring data. In my corpus,3 there are a total of 26 occurrences of the Guaraní markers –kue and –r̃a (17 and 9, respectively) but no occurrences of the English adjectives (or their Spanish equivalents). This again suggests that the Guaraní markers and the English adjectives are not entirely equivalent in meaning.

3The corpus consists of stories I collected during my fieldwork and has about 2000 Guaraní words, which corresponds to about 4000 English words.
In the remainder of this section, I examine the distribution of Guaraní –kue and –rā with nouns of different semantic classes and their basic meaning properties (section 1.1). After providing an informal summary of the meaning properties of the two markers, a formal semantic analysis is developed in section 1.2, on the basis of which I examine the behavior of the two nominal temporal markers in discourse (section 1.3). Section 1.4 summarizes the main findings.

1.1 Basic meaning properties of Guaraní –kue and –rā

1.1.1 The precedence meaning property

As mentioned when discussing the examples in (2), one of the most salient meaning properties of –kue and –rā is that they convey a precedence relation: a past time oriented one for –kue and a future time oriented one for –rā. To illustrate this further, consider the following two examples.

(5) a. Che a-rekọ peteï lívwọ de medisína, che-aguílo mba’e-kue.
   B1sg A1sg-have one book of medicine, B1sg-grandfather thing-KUE
   ‘I have a medicine book, it was my grandfather’s.’ [P:165]

   b. Che-memby, peteï chokokue-rà, o-ho gueteri eskuela-pe.
   B1sg-child one farmer-RA A3-go still school-PE
   ‘My child, a future farmer, still goes to school.’ [E]

The marker –kue on the noun phrase che-aguílo mba’e ‘my grandfather’s thing’ in (5a) conveys that the possessive relation between the speaker’s grandfather and the thing (the book) was true in the past of the utterance time. In (5b), –rā conveys that the child is not yet a farmer but might become one at a time in the future of the utterance time. I refer to this meaning property of –kue and –rā as the PRECEDENCE property.\(^4\)

\(^4\)The salience of the PRECEDENCE property is also apparent in the characterizations –kue and –rā receive from traditional Guaraní scholars. Melià et al. (1997:114), for instance, suggests that –kue is a ‘sufijo que indica el pasado de un sustantivo’ (a suffix that indicates the past of a noun) and –rā is a ‘sufijo que indica el futuro de un sustantivo’ (suffix that indicates the future of a noun). Gregores and Suárez (1967), which is among the first modern linguistic
To talk in more precise terms about the meaning of the two markers, I use the nominal time $t_n$ to refer to the time at which a noun phrase is interpreted, and the time $t'$ to refer to the time at which the nominal or possessive predication is true of the individuals denoted by the noun phrase. Thus, the PRECEDENCE meaning property of –kue conveys that the time $t'$ precedes the nominal time $t_n$, and that –rā conveys that the time $t'$ follows the nominal time $t_n$. In (5a), for example, the noun phrase che-aguílo mba’e-kue ‘my grandfather’s thing-kue’ is interpreted at the nominal time $t_n$, which is the utterance time here, and the possessive relation between the grandfather and the book is asserted by –kue to have been true at a time $t'$ prior to the nominal time. Similarly, the noun phrase peteī chokokue-rā ‘one farmer-ra’ in (5b) is interpreted at the nominal time, which is the utterance time, and –rā conveys that the property ‘farmer’ may become true of the child at a time $t'$ in the future of the nominal time.

1.1.2 The change of state meaning property

A second meaning property of the nominal temporal markers is they convey a change of state. As a first approximation, we can say that they convey that at the nominal time $t_n$ the nominal or possessive predication is not true of the individual(s) denoted by the noun phrase. (This characterization will be slightly revised below.) Consider the examples in (6).

   Juan one teach-NOM-AG-KUE
   ‘Juan is a former teacher.’ [E]

   b. #... ha mbo’e-ha-ra gueteri.
      and teach-NOM-AG still
      ‘...and he’s still a teacher.’ [E]

descriptions of the language, analyze –kue and –rā as derivational morphemes that mean ‘past, former’ and ‘future’, respectively (p.127-8). The salience of the PRECEDENCE meaning property might also be the reason why –kue and –rā, and similar markers from other languages, are claimed to be nominal tenses (see references above, inter alia) since, in the widely studied European languages, tenses are the most prominent expressions that encode a precedence relation. However, as discussed, e.g. in Smith (1991) and Klein (1994), grammatical aspect can also encode a precedence relation.
(6a), where –kue is realized on the agentive nominalization mbo’e-ha-ra (teach-NOM-AG) ‘teacher’, asserts that Juan was a teacher at a time t’ prior to the nominal time t_n, which is the utterance time here (PRECEDENCE meaning property). (6b), which asserts that Juan is still a teacher at the utterance/nominal time t_n, is not a felicitous continuation of (6a). This suggests that (6a) not only conveys that Juan was a teacher in the past but also that he is not a teacher anymore, hence explaining the infelicity of (6b) in the context of (6a).

The following example, however, evidences that –kue does not assert that the nominal property is false at the nominal time t_n.

(7) Juan peteĩ mbo’e-ha-ra-kue, ha ko’agä mbo’e-ha-ra jey.
Juan was a former teacher and now teach-NOM-AG-KUE and now teach-NOM-AG again
‘Juan is a former teacher, and now he’s a teacher again.’ [E]

(7) asserts that Juan is a former teacher and currently a teacher, which allows us to conclude that –kue does not assert that the nominal or possessive predication is false at the nominal time t_n. Rather, –kue conveys that the nominal or possessive predication ceases to be true prior to t_n. I refer to this as the CHANGE (of state) property of –kue. Thus, in (6a), –kue asserts that Juan was a teacher in the past (PRECEDENCE meaning property), and ceased to be a teacher at a time between t’ and the nominal time t_n (CHANGE meaning property). That Juan is not a teacher at the nominal time t_n is an implicature that arises since no explicit information is given in (6a) that would allow us to conclude that Juan is again a teacher at the nominal time.

It is instructive to compare the behavior of –kue to the English past tense, which does not have the CHANGE meaning property.

(8) a. On Wednesday Arthur was sick.
   b. He is still sick today.

In contrast to (7), the discourse in (8) is felicitous. The past tense verb was in (8a) asserts that Arthur was sick at a time in the past. In other words, the English past tense, just like Guaraní –kue,
conveys a past time oriented precedence relation. The English past tense and Guaraní –kue differ, however, in that the English past tense does not have the CHANGE property: (8a) does not assert, but only implicates, that Arthur is not sick anymore at the utterance time. This is evidenced by the fact that (8b), which explicitly states that Arthur is still sick, is a felicitous continuation of (8a).

The example in (9) illustrates the CHANGE (of state) meaning property for –r̆a.

(9) a. Kuehe a-hecha peteĩ abogado-r̆a-me.
    yesterday A1sg-see one lawyer-RA-PE
    ‘Yesterday I saw a future lawyer.’ [E]

    b. #A-hecha-ramo-gua-re ha’e abogado-ma.
    A1sg-see-COND-of-RE 3.pron lawyer-MA
    ‘When I saw him he was a lawyer already.’ [E]

(9a) asserts that the person who the speaker saw yesterday might become a lawyer at a time t’ in the future of the time t_n at which the speaker saw the individual (the PRECEDENCE property). The fact that (9b) is not a felicitous continuation of (9a) again suggests that (9a) also asserts that the individual is not yet a lawyer at t_n (the CHANGE property).

While both –kue and –r̆a have the PRECEDENCE and the CHANGE meaning property, one difference between the two markers arises as a consequence of the fact that –kue is a past time oriented marker while –r̆a is a future time oriented one. The marker –kue asserts that the nominal or possessive predication is true of the individual(s) at a time t’ prior to the nominal time t_n and that the predication ceases to be true prior to the nominal time t_n. Since –r̆a is future time oriented, the time t’ at which the nominal or possessive predication is asserted to be true lies in the future of the nominal time t_n. The fact that –r̆a is future time oriented means that, unlike –kue, where the nominal or possessive predication is true at a time t’ in the actual world, the nominal or possessive predication with –r̆a is true at a time t’ in a possible world. It follows that if somebody is an abogado-kue ‘lawyer-KUE’ at the utterance time, the person was a lawyer in the past in the actual world. One cannot refer to somebody as an abogado-kue ‘lawyer-KUE’, if the person never was a lawyer in the past. In this respect, –r̆a differs from –kue, as illustrated with the example in (10):
(10) **Context:** During a presidential election campaign where Pedro, Juan and Mario are presidential candidates (for the same position).

Pedro, Juan ha Mario tendota-rä.
Pedro Juan and Mario president-RA

‘Pedro, Juan and Mario are presidential candidates.’

In (10), –rä occurs on the noun tendota ‘president’, thereby conveying that the property ‘president’ is not true for any of the individuals Pedro, Juan and Mario at the nominal/utterance time (CHANGE property). (10) entails that the property ‘president’ is true of the individuals at a time t’ in the future of the nominal time, hence the translation of tendota-rä (president-RA) as ‘candidates’ in English. Since only one of the candidates can win the election, being a tendota-rä ‘president-RA’ at the nominal/utterance time $t_n$ does not entail that the property ‘president’ is true for each individual at a time t’ in the future of $t_n$ in the actual world. Rather, since the future is indeterminate from the perspective of the nominal/utterance time, (10) entails that for each individual there is a (set of) possible worlds in which the individual will become president.

### 1.1.3 Cooccurrence restrictions with semantic noun classes

In naturally occurring discourse, –rä occurs with a wider variety of semantic classes of nouns than –kue. In order to examine the cooccurrence restrictions of the two markers with different semantic noun classes, I supplemented naturally occurring data with data from a consultant elicitation study. In this study, I examined, with the help of three Guaraní language consultants, the compatibility of 47 nouns from six semantic noun classes with one of the two nominal temporal markers.\(^5\) If the combination was acceptable, I asked my consultants to create an utterance that contains the combination. The results of this study are given in Table 1 where a ✓ indicates acceptability of the combination, and a * indicates unacceptability. Since relational nouns were deemed odd

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\(^5\)The original study (presented in Tonhauser 2006) contains 72 nouns from 8 semantic classes. Two of the classes, temporal period and event nouns, are excluded here because they introduce additional complications that do not bear on the topic of this paper.
by my consultants in non-possessive constructions, the acceptability of –kue and –rã with such nouns was only tested in possessive noun phrases: \( \checkmark_{\text{poss}} \) indicates the acceptability of a nominal temporal marker with a possessive noun phrase headed by a relational noun. The six classes into which the nouns in Table 1 are divided are motivated to some extent by general lexical semantic and psycholinguistic considerations, such as, for instance, the division between natural kinds and artifacts (Rosch and Mervis 1975, Keil 1989) and the division between stage- and individual-level relations (Carlson 1977, Kratzer 1995). The latter division encodes whether a property is true of an individual during part of its time of existence\(^6\) (stage-level, such as ‘priest’ or ‘happy’) or during all of its existence (individual-level, such as ‘have blue eyes’ or ‘woman’). In Table 1, individual-level predicates are joined with what I refer to as ‘final-stage’ predicates: these include nouns that denote relations like ‘father’ and properties like ‘survivor’ which, once true, are true of an individual for the rest of its time of existence (i.e. the final stage of the individual’s existence). Artifacts are divided into non-food and food artifacts in Table 1 because of the cooccurrence restrictions exhibited by –kue.

The marker –kue is not acceptable with nouns denoting food artifacts, natural kinds or individual-level and final stage predicates. For instance, –kue does not productively occur with individual-level predicates like \( \text{kuna} \) ‘woman’\(^7\) or with natural kinds like \( \text{ama} \) ‘rain’, while –rã is basically acceptable with members from all six classes. The fact that –kue exhibits cooccurrence restrictions with particular semantic noun classes contradicts Nordlinger and Sadler’s (2004:780) assumption that nominal temporal markers like those of Guaraní are “fully productive, inflectional affixes that attach to all (regular) members of the nominal word class”. The semantic analysis that is presented below accounts for the respective cooccurrence restrictions of –kue and –rã.

\(^6\)I use the term ‘time of existence’, which is made formally precise below, to refer to the lifetime of animate entities as well as the time during which an inanimate entity exists.

\(^7\)In a situation where a woman undergoes a sex-change operation my consultants accept \( \text{kuna-kue} \) ‘woman-KUE’ after some consideration, but I have not observed such combinations in naturally occurring discourse.
1.1.4 The existence meaning property

I suggest that –kue has a third meaning property, and that this property, which I refer to as the EXISTENCE property, accounts for its cooccurrence restrictions and the infelicity of examples like (11). A weaker version of the EXISTENCE meaning property holds of –rā, as I discuss below.

(11) Context: San Isidro once had a priest called Jose. This man died as a priest.

    #Pe pa’i-kue Jose
    that priest-KUE Jose

    ‘that ex-priest Jose’  [E]

The discourse context of this example specifies that there is a man who died as a priest, i.e. this man never was a former priest during his lifetime. The hash sign ‘#’ indicates that the noun phrase pe pa’i-kue (that priest-KUE) ‘that former priest’ cannot be used in this discourse context to refer

<table>
<thead>
<tr>
<th>professions</th>
<th>non-food artifacts</th>
<th>food artifacts</th>
<th>natural kinds</th>
<th>stage-level relations</th>
<th>individual-level/final-stage relations</th>
</tr>
</thead>
<tbody>
<tr>
<td>e.g. priest, teacher, lawyer</td>
<td>e.g. house, chair, bicycle</td>
<td>e.g. cheese, bread, tortilla</td>
<td>e.g. tree, wind, squash</td>
<td>e.g. neighbor, friend, wife</td>
<td>e.g. father, brother, grandmother</td>
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<td>–kue</td>
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Table 1: The Acceptability of –kue and –rā Across Semantic Noun Classes
to this individual. Intuitively, this is so because the property of being a former priest was never true of Jose and, hence, cannot felicitously be used to identify him. We can account for this intuition by assuming that –kue requires that both $t'$ (the time at which the property is true of the individual(s) denoted by the noun phrase) and $t_n$ (the time by which the property has ceased to be true) fall within the lifetime(s) of the individual(s) denoted by the noun phrase. I refer to this as the_existence meaning property. In (11), this means that Jose could only felicitously be referred to as a _pa’i-kue ‘former priest’ if the time $t'$ at which he was a priest as well as the nominal time $t_n$ by which he ceased to be a priest were included in his lifetime. Since this is not the case (as specified in the discourse context), it is infelicitous to use this noun phrase to refer to Jose.

The example in (12) illustrates how the existence property of _kue plays out with stage-level relations like that denoted by ore-pa’i-kue (our priest-KUE) ‘our former/ex-priest’.

(12) Context: San Isidro once had a priest called Jose. This man died as a priest. (= discourse context of (11))

  Ore-pa’i-kue Jose
B1pl.excl-priest-KUE Jose

  ‘our ex-priest Jose’ [E]

In contrast to the noun phrase in (11), the noun phrase in (12) can be used to refer to Jose in the given discourse context, despite the fact that Jose never was a former priest during his lifetime. In (12), _kue modifies the possessive relation that holds between the priest and the community. This relation was true of the priest and the community at a time $t'$ prior to the utterance time and is false at the nominal/utterance time $t_n$. Only the former time lies within the time of existence of both the priest and the community. With possessive predications, the existence meaning property of _kue only requires $t'$ to be included within the time of existence of both (sets of) individual(s) involved in the relation. Thus, the noun phrase in (12) can be felicitously used to refer to Jose.

I propose that the existence meaning property is responsible for the unacceptability of _kue with nouns denoting natural kinds, and individual-level and final-stage properties and relations (cf.
Table 1). Consider first individual-level and final-state properties and relations. These are true of (pairs of) individuals during times that (minimally) coincide with the final stage of their time of existence: final-stage predicates are true of the individual(s) denoted by the noun phrase during the final stage only, and individual-level predicates are true during the whole lifetime. From the fact that the right boundary of the time of existence and the property or relation are cotemporal, it logically follows that if the property or relation ceases to be true of the individual(s) denoted by the noun phrase, the time of existence of the individuals terminates as well. We saw above that the CHANGE property of –kue requires the property or relation denoted by the noun to be terminated prior to the nominal time $t_n$. Since for nouns denoting individual-level and final-stage properties this means that the time of existence of the individuals denoted by the noun phrase terminates, it is not possible for the nominal time $t_n$ to be included within the time of existence, contrary to what is required by the EXISTENCE property. It follows that nouns that denote individual-level or final-stage properties or relations are unacceptable with –kue.

I submit that natural kind nouns denote individual-level properties and therefore pattern like nouns denoting individual-level and final-stage properties and relations. Nouns denoting artifacts, on the other hand, denote stage-level properties and are therefore acceptable with –kue. (Nouns denoting food artifacts are an exception and discussed below.) The assumption that natural kind nouns denote individual-level properties and artifact nouns denote stage-level properties is based on the way in which natural kinds and artifacts are conceptualized. According to Bloom (1996:2), artifacts are (in part) characterized by the function their creator intends them to have, and the entity can cease to have this function without the entity ceasing to exist. For instance, a bicycle that was hit by a car still exists (if only as a bunch of twisted metal) even if it does not function as a bicycle anymore. Similarly, an apartment complex that now houses offices has lost its original function but still exists. Thus, an artifact continues to exist even when it changes its physical appearance or is used with a different function. In other words, the entity can change its property without ceasing to exist, just like entities of which stage-level properties like student or be angry are true. It follows that –kue is acceptable with artifact nouns. With nouns denoting natural kinds, on the other hand, the property denoted by the natural kind noun is of high relevance to the identity of the entity.
Such entities cease to exist when the natural kind property ceases to be true of them. For instance, a natural kind entity is water as long as the property ‘water’ is true of it. Once the water entity turns into steam, the water entity ceases to exist (and a new natural kind ‘steam’ comes into existence). The intimate tie between the natural kind property and the existence of the natural kind supports the assumption that natural kind nouns denote individual-level properties. It follows that –kue is not acceptable with natural kind nouns, just as it is not acceptable with other individual-level nouns (Table 1).

If the time of existence of an animate entity is the entity’s lifetime, i.e. the time during which it is alive, what is the time of existence of an inanimate entity? I assume here that the time of existence of an inanimate entity is its (unbroken) spatiotemporal path, following the cognitive and developmental psychology literature that explores the identity of inanimate entities (e.g. Keil 1989, Spelke et al. 1995, Sternberg 1982). Two inanimate entities are considered to be identical if we know that the entities fall on the same (unbroken) spatial and temporal path. I assume the following characterizations for ‘time of existence’ of animate and inanimate entities:

(13) **The time of existence of entities**

The time of existence τ(x)\(^8\) of an entity x is
- the lifetime of x if x is animate, and
- the temporal extension of the spatiotemporal path of x if x is inanimate.

What remains to be explained about the distribution of –kue with different semantic classes (cf. Table 1) is why –kue is acceptable with nouns denoting non-food artifacts (such as óga ‘house’) but not with food artifacts (such as keso ‘cheese’). The **EXISTENCE** property of –kue does not account for the unacceptability of –kue with nouns denoting food artifacts since such nouns denote stage-level properties just like nouns denoting non-food artifacts. It is instructive to consider in more detail the meaning –kue gives rise to with non-food artifact nouns. What –kue asserts with such nouns is that the entity denoted by the noun phrase has lost (some of) its functionality. For

\(^8\)The function τ maps individuals to their time of existence. It is adapted from Krifka’s (1989) temporal trace function, which maps eventualities to their situation time.
instance, **bisikleta-kue** ‘bicycle-KUE’ could denote a pile of metal that used to be a bike. An entity of which **pare-kue** ‘wall-KUE’ is true is a wall that is crumbling and not stable anymore (example (2a)) and **óga-kue** ‘house-KUE’ could either denote the ruins of a house or a house that is now used as, for instance, a church. (To compare, the loss of functionality that is encoded by Guaraní –kue for artifact nouns is encoded in English by adjectives like **old** or **broken**, not with **former**.) In other words, with artifact nouns, –kue asserts that the structural integrity of the entity is lost (e.g. the bike is broken). Crucially, only artifacts that are not structurally homogenous can lose their structural integrity, where ‘structural homogeneity’ is a notion defined on the basis of Krifka’s (1992) notion of divisiveness.9

(14) Structural Homogeneity:

If P is the property denoted by an artifact noun x, and P(x) is true at a time t, then the entity x is structurally homogeneous if and only if, for all proper parts y of x, P(y) is true at t.

According to (14), a wall or a bike are not structurally homogenous because there are parts of the wall or bike that are not a wall or a bike. With such artifacts, –kue asserts that the entity’s structural integrity is lost, i.e. the entity is old or broken. All of the food artifacts I tested10 are structurally homogenous: **kesu** ‘cheese’, for instance, is structurally homogenous since every part of a cheese is still cheese. I propose that –kue is unacceptable with nouns denoting food artifacts since they are structurally homogenous and since –kue with such nouns cannot assert that the entity is broken (i.e. has lost its structural integrity). Future research needs to determine whether this analysis holds up for structurally homogenous non-food artifacts and structurally non-homogenous food artifacts.

The meaning of –kue is informally summarized in (15).

9A property P is divisive iff \( \forall x (P(x) \land \neg \text{atom}(x) \rightarrow \exists y (y \subset x \land P(y))) \). In words: a property P is divisive if and only if for all entities x such that P is true of x and x is not atomic (i.e. x is further dividable), there is an entity y that is a (proper) part of x and P is true of y.

The Meaning of –kue

For an entity x that is denoted by a noun phrase marked with –kue,

- the property/relation denoted by the nominal/possessive predication is true of x at a time \( t' \) prior to the nominal time \( t_n \) (PRECEDENCE meaning property),
- the property/relation denoted by the nominal/possessive predicate has ceased to be true of x (and y, in the case of relations) prior to \( t_n \) (CHANGE meaning property), and
- the time of existence of the entity x includes \( t' \) and \( t_n \) (for properties) or the time of existence of the entities x and y minimally includes \( t' \) and the time of existence of the possessor x also includes \( t_n \) (for relations) (EXISTENCE meaning property).

In contrast to –kue, –r̃a is acceptable with members of all semantic noun classes (cf. Table 1). I attribute this to –r̃a having a weaker version of the EXISTENCE meaning property than –kue. To illustrate the EXISTENCE meaning property of –r̃a, consider first the meaning of –r̃a with nouns denoting humans:

(16) Che-memby, peteí chocokue-r̃a, o-ho gueteri eskuela-pe.
B1sg-child one farmer-RA A3-go still school-PE
‘My child, a future farmer, still goes to school.’ [E]

(16) asserts that the speaker’s child, who exists at the utterance time, is not a farmer at the utterance/nominal time \( t_n \) (CHANGE property) but might become a farmer in at a time \( t' \) in the future (PRECEDENCE property). With nouns phrases denoting humans, the EXISTENCE property of –r̃a requires that both \( t_n \) and \( t' \) be included in the human’s life time. That is, it is not possible to attribute ‘P-r̃a’ (where P is the property or relation denoted by a noun) to a human if it is impossible for the time \( t' \) at which the P is true to be included within the human’s lifetime. This predicts the infelicity of the examples in (17a) and (17b): it is not possible for a woman to become a (Catholic) priest (17a) nor for a child to become a butterfly (17b).

The situation is different for nouns denoting non-human entities, whether animate or inanimate. Here, the existence property of \( r \) merely requires that the times \( t' \) and \( t_n \) be included in the time of existence of entities that are spatiotemporal continuations of each other. Crucially, \( r \) does not require that the two entities are identical. Consider the following examples.

(18)  a. Context: Pointing to some caterpillars.

\[
\text{Umi yso panambi-} r \text{.}
\]
\[
\text{these caterpillar butterfly-RA}
\]

‘These caterpillars are future butterflies.’

b. Context: A man is selling his cow.

\[
\text{A-vende so’o-} r \text{.}
\]
\[
\text{A1sg-sell meat-RA}
\]

‘I am selling future meat/(the cow) for meat.’

The identificational clause in (18a) conveys that the caterpillars that are pointed to are not butterflies at the nominal/utterance time \( t_n \), but might be butterflies at a time \( t' \) in the future. Since caterpillars can turn into butterflies in the actual world, butterflies are spatiotemporal continuations of caterpillars. Hence, the existence property of \( r \) is fulfilled in (18a) because \( t' \) and \( t_n \) are included in the time of existence of entities that are spatiotemporal continuations of each other. Likewise, (18b) conveys that the cow will be meat at some time \( t' \) in the future of the nominal/utterance time \( t_n \). Since (cow) meat is a spatiotemporal continuation of the living cow, the existence property of \( r \) is fulfilled here, too.

The following examples illustrate \( r \) with natural kinds and (food and non-food) artifacts.
The noun phrase jepe’a ‘firewood’ in (19a) denotes an entity of which the property ‘firewood’ is true at the nominal time $t_n$. This entity is identified with the entity denoted by the noun phrase tata-ră ‘fire-RA’, which specifies that the entity might have the property tata ‘fire’ at a time $t'$ in the future of $t_n$.\footnote{Since the firewood serves the purpose of (making a) fire, (19a) is translated in English with the purposive marker for. See Tonhauser (2006) for discussion of the use of –ră in purpose clauses.} Again, the existence property of –ră is fulfilled since the fire, although not an entity identical to firewood, is a spatiotemporal continuation of the firewood. Similarly, in (19b), the wood that the individual throws into the mud is asserted to originally not have been a bridge (when it was simply wood) but has turned into a bridge at a time in the (relative) future. In (19c), the milk is asserted to be future cheese: the spatiotemporal continuation of the milk is cheese.

The unacceptability of both examples in (20) follows from the existence meaning property of –ră since the two entities in each example are not spatiotemporal continuations of each other: a bucket does not turn into water (20a) and earth does not turn into squash (20b).

The meaning of –ră is summarized in (21).
(21) **The Meaning of –rā**

For an entity x that is denoted by a noun phrase marked with –rā,

- the property/relation denoted by the nominal/possessive predicate might become true of x at a time $t'$ subsequent to the nominal time $t_n$ (**PRECEDENCE meaning property**),
- the property/relation denoted by the nominal/possessive predicate is not true of x at $t_n$ (**CHANGE meaning property**), and
- if x is human, x must exist at $t_n$ and $t'$; if x is not human, x must exist at $t_n$ and an entity y that is a spatiotemporal continuation of x must exist at $t'$ (**EXISTENCE meaning property**).

### 1.2 A semantic analysis of –kue and –rā

This section develops a formal semantic analysis of the meaning of –kue and –rā. The analysis makes predictions about the nature of the times $t'$, the time at which the nominal or possessive predication is true, and the nominal time $t_n$, the time at which the noun phrase is interpreted, both of which play an essential role in the temporal interpretation of noun phrases. I explore these predictions in section 1.3.

In the analysis, I assume that nominal predicates denote properties of or relations between entities that are true of these entities at particular times. Thus, an intransitive predicate like **house** denotes the property ‘house’, which is true of an entity x at a time t. Similarly, a transitive nominal predicate like **friend** denotes the relation ‘friend’, which is true of two entities x and y at a time t. I refer to the time t during which a property is true of an entity x as the situation time of P(x) (and similarly for relations). Borrowing again the temporal trace function $\tau$ from Krifka (1989), I write $\tau(P(x))$ to denote the situation time of P(x) and $\tau(R(x,y))$ for the situation time of R(x,y). The situation time $\tau(P(x))$ is a maximal, consecutive time at which the property P is true of x. For instance, if Paul was a priest from 1966 to 1976, was defrocked in 1976 but reinstated in 1980, there are two situation times for ‘priest(paul)’: a situation time $t_1$ from 1966 to 1976 and a situation time $t_2$ from 1980 to now.
1.2.1 A formal semantic analysis of Guarani –kue

I propose that –kue and –ra are nominal predicate modifiers: they apply to nominal predicates that denote properties or relations P and return novel properties or relations \( \text{KUE}(P) \) and \( \text{RA}(P) \), respectively. I first discuss the meaning of –kue.

(22) **The meaning of –kue:**

\[
\forall P \forall x(\text{KUE}(P)(x) = 1 \text{ at } t_n \text{ in } w \iff \exists t'(t' \prec t_n \land \tau(P(x)) = t' \text{ in } w)
\]

(For all properties P and entities x, the property \( \text{KUE}(P) \) is true of x at the nominal time \( t_n \) in a world w if and only if there is a time \( t' \) that precedes \( t_n \) and \( t' \) is the situation time of \( P(x) \) in world w.)

In (22), the PRECEDENCE property of –kue is encoded by the constraint ‘\( t' \prec t_n \)’ and the CHANGE meaning property follows from the fact that the situation time \( \tau(P(x)) \) is asserted to be \( t' \), which precedes \( t_n \) and hence terminates prior to \( t_n \). As it stands, the EXISTENCE meaning property does not yet follow from (22): although (22) requires that both \( \text{KUE}(P) \) and P are true of the individual x, nothing requires \( t_n \) and \( t' \) to fall within the time of existence of x. This, however, need not be encoded by –kue but follows from the meaning of –kue in (22) and constraints introduced by stage-level, individual-level and final-stage predicates, respectively. Such predicates specify particular relations between the situation time \( \tau(P(x)) \) of the property denoted by the predicate and the time of existence \( \tau(x) \) of the individual x of whom the property is predicated:

(23) **Constraints introduced by different predicate types:**

a. Stage-level predicates: \( \tau(P(x)) \subseteq \tau(x) \)

b. Individual-level predicates: \( \tau(P(x)) = \tau(x) \)

c. Final-stage predicates: \( \tau(P(x)) \in \text{FIN}(\tau(x))^\text{12} \)

As specified in (23a), stage-level predicates like happy or student require that the situation time during which the property denoted by the predicate is true of the individual(s) denoted by the noun

\text{FIN} is a function from times to a set of times that are final stages of the input time.
phrase is included in the time of existence. Individual-level predicates (23b) require the situation time of the property (or relation) to be identical to the time of existence of the individuals (Carlson 1977, Kratzer 1995). Final-stage predicates, like survivor or father, require the situation time of the property (or relation) to be a final interval of the individual’s time of existence. The EXISTENCE meaning property of –kue follows from the meaning of –kue in (22) and the constraints in (23). For example, *ama-kue ‘rain-kue’ is not an acceptable combination because the individual-level predicate ama ‘rain’ constrains the situation time τ(ama(x)) to be identical to τ(x) (per (23b)) and hence the nominal time t_n, which follows τ(ama(x)), cannot be included in τ(ama(x)), in violation of the EXISTENCE property.

The analysis makes predictions about the nominal time t_n and the time t' that are explored in the next section. Since the meaning of the nominal temporal marker –kue as in (22) does not affect the localization of the nominal time. In other words, the temporal interpretation of noun phrases marked with –kue is not affected by –kue but predicted to be subject to the same (contextual) constraints as the temporal interpretation of noun phrases not marked with –kue. I show in section 1.3 that, in Guaraní, the nominal time t_n, i.e. the time at which a noun phrase is interpreted, need not be the time at which the verb is interpreted but is just as free as the nominal time in English or German (cf. Enç 1981, Musan 1995, Tonhauser 2002). Regarding the time t', on the other hand, the analysis of –kue in (22) predicts that this time is not contextually given or constrainable, since t' is existentially quantified in (22).

1.2.2 A formal semantic analysis of Guaraní –rã

The analysis of –rã in (24) is inspired by Dowty’s (1979) and Portner’s (1998) modal analyses of the progressive.

(24) The meaning of –rã:
∀P∀x(RA(P)(x) = 1 at t_n in w iff
∀w'∈Best(Circ,NOcc,P) ∃t'∃x' (t_n≺t' ∧ t' = τ(P(x')) in w' ∧ cont(x,x') in w')
(For all properties P and individuals x, the property RA(P) is true of x at the nominal time
In the actual world \( w \) if and only if for all worlds \( w' \) that are in the set of worlds given by \( \text{Best}(\text{Circ},\text{NOcc},P) \) there is a time \( t' \) and an individual \( x' \) such that \( t' \) follows \( t_n \) and \( t' \) is the situation time of \( P(x') \) in \( w' \) and \( x' \) is a spatio-temporal continuation of \( x \) in \( w' \).

The PRECEDENCE, CHANGE and EXISTENCE meaning properties follow from (24), just as they did from the meaning of \( -kue \) in (22). Part of the meaning of \( -r\tilde{a} \) in (24) is a universal quantification over worlds \( w' \) that are in the set given by \( \text{Best}(\text{Circ},\text{NOcc},P) \). This part of the meaning of \( -r\tilde{a} \) is formulated within Kratzer’s (1981, 1991) theory of modality and inspired by Portner’s (1998) modal analysis of the progressive. The general idea behind Kratzer’s theory is that modals quantify over possible worlds, where the meaning of the modal marker and two contextually determined parameters determine the set of worlds quantified over. The first parameter is the modal base, which represents the set of worlds that are accessible from the perspective of the world within which the modal is uttered. The second contextual parameter, the ordering source, specifies an ordering of the accessible worlds. In (24), the modal base is a circumstantial one (Circ), which determines that the worlds that are accessible from \( w \) are those in which the propositions which state the currently relevant circumstances are true. The ordering source in (24) specifies worlds in which propositions are true which express that whatever might lead to the non-realization of the property \( P \) in the future do not occur (i.e. NOcc stands for ‘not occur’). In short, the worlds in \( \text{Best}(\text{Circ},\text{NOcc},P) \) are those in which the world \( w \) continues to develop as expected on the basis of currently relevant circumstances and nothing happens that would prevent \( P \) from becoming true of the individuals. Thus, the analysis of \( -r\tilde{a} \) captures the idea that one may attribute the property \( RA(P) \) to an individual \( x \) only if the discourse context supports the assumption that \( P \) will be true of the individual(s) denoted by the noun phrase at a time in the future. To illustrate the analysis, consider the example in (25), repeated from (18a).

(25) Context: The speaker points to some caterpillars on a tree.

\[
\text{Umi yso panambi-}r\tilde{a}.
\]

these caterpillar butterfly-RA

‘These caterpillars are future butterflies.’

[E]
The identification construction in (25) conveys that there is a set of individuals $\xi$ that are asserted to be caterpillars and which also have the property $\text{RA}(\text{butterfly})$ at the utterance time (which is also the nominal time for both noun phrases). A sample modal base $\text{Circ}$ and ordering source $\text{NOcc}$ for this example in the discourse context are given in (26).

\[(26)\]
\[
a. \text{Circ}(\text{butterfly}) = \{ \text{`The caterpillars look healthy'}, \text{`These kinds of caterpillars turn into butterflies'}, \text{`The caterpillars look normal in their development'}, ... \}\]
\[
b. \text{NOcc}(\text{butterfly}) = \{ \text{`The caterpillars don’t get eaten'}, \text{`The caterpillars don’t get stepped on'}, \text{`The caterpillars don’t starve to death'}, ... \}\]

According to (24), the utterance (25) is true if in all worlds in $\text{Best}(\text{Circ}, \text{NOcc}, \text{butterfly})$, i.e. in all the worlds in which the caterpillars develop as expected given the currently relevant circumstances and are not eaten, stepped on, starve to death, etc., there is a time $t'$ in the future of $t_n$ at which a there is a set of butterflies $\xi'$ that are spatiotemporal continuations of the caterpillars $\xi$.

The analysis of $-\text{rã}$ in (24) makes the same predictions regarding the nominal time $t_n$ and the time $t'$ as $-\text{kue}$: it predicts that $-\text{rã}$ does not restrict the nominal time at which a noun phrase is interpreted, and that the time at which the nominal predication is located is not contextually given or constrainable, since it is existentially quantified.

1.3 The interpretation of Guaraní $-\text{kue}$ and $-\text{rã}$ in discourse

Before we can explore how $-\text{kue}$ and $-\text{rã}$ affect the temporal interpretation of Guaraní noun phrases, some basic properties of the temporal interpretation in Guaraní need to be established. First, $-\text{kue}$ and $-\text{rã}$ only affect the temporal interpretation of the noun phrase they attach to. That they do not affect the interpretation of the verbal predicate is illustrated in the example in (27).

\[(27)\] O-ho peteï arriéro o-jeruré-vo la h-embireko-\text{rã}-re.
A3-go one man A3-ask.for-at LA 3-wife-RA-RE
\text{`A man went to ask for his future wife.'} \quad \text{[P:57]}

24
In (27), the verbal predicate ho ‘go’ is interpreted in the past of the utterance time. The nominal marker –rã on the noun phrase h-embireko ‘his wife’ only affects the temporal interpretation of the possessive relation between the man and the woman, not the interpretation of the eventuality denoted by ho ‘go’.

Second, in order to understand the meaning contribution of –kue and –rã, we need to understand how Guaraní noun phrases that are not marked with –kue or –rã are temporally interpreted. In my discussion, I employ, in addition to the nominal time, the time of utterance (TU), the situation time (ST), and the reference time (RT), which is the time from which an eventuality is presented. The reference time, which goes back to Reichenbach (1947), is illustrated in the following examples.

(28)  

a. In 1980, Harry met Sally. [ST,RT ≺ TU]  

b. In 1980, Harry had already met Sally. [ST ≺ RT ≺ TU]

In (28a), the reference time RT overlaps with the situation time ST of the eventuality ‘Harry meet Sally’, both of which are located within the time denoted by the temporal adverb in 1980 and precede the time of utterance TU (as indicated by ‘ST,RT ≺ TU’). In (28b), the reference time RT is again located within the time denoted by in 1980, but the perfect construction had already met locates the situation time ST of ‘Harry meet Sally’ prior to the reference time RT, conveying Harry met Sally at a time prior to 1980.

The examples in (29) illustrate that Guaraní noun phrases can be interpreted at the reference time (29a), the time of utterance (29b), or a contextually given time other than the reference time or the time of utterance (29c), just like English or German noun phrases (cf. Enç 1981, Musan 1995, Tonhauser 2002).

(29)  

a. [Poss,RT≺TU] t_n = RT

Context: The frog follows the boy and the dog to their house.

Ha o-ğuáhe-ma katu h-enda-pe.  
and A3-arrive-MA indeed 3-place-PE

‘And he had already arrived at his place.’ [C]
b. \([\text{RT} \prec \text{TU}, \text{Poss}]\) \(t_n = \text{TU}\)

\(\text{A-topa che-rembireko-pe Villarica-pe.}\)
\(\text{A1sg-find B1sg-wife-PE Villarica-PE}\)

‘I met my wife in Villarica.’

Next utterance: When I met her she was married to an Argentinean. \[E\]

c. \([\text{N} \prec \text{RT}, \text{TU}]\) \(t_n = \text{contextually given time other than RT or TU}\)

\(\text{Ko’agă pe fugitivo o-i-jey-ma carcel-pe.}\)
\(\text{now that fugitive A3-be-again-MA prison-PE}\)

‘Now the fugitive is in prison again.’ \[E\]

In (29a), the nominal time \(t_n\) is located at the reference time prior to the time of utterance, thereby locating the situation time of the possessive relation prior to the time of utterance (represented as \([\text{Poss}, \text{RT} \prec \text{TU}]\)). In (29b), the nominal time \(t_n\), at which the possessive predication ‘my wife’ is interpreted, is the time of utterance TU, which is located in the future of the reference time RT. In (29c), the reference time is located at the time of utterance, and the nominal predication \(\text{fugitivo}\) ‘fugitive’ is located at the nominal time \(t_n\), which is located at a contextually given time prior to the utterance/reference time.

1.3.1 The temporal interpretation of noun phrases with \(-\text{kue} and \(-\text{rā}\)

Having established that the nominal time \(t_n\) of Guaraní noun phrases that are not marked with a nominal temporal marker can be located at the reference time, the time of utterance or another contextually given time, we can explore how \(-\text{kue} and \(-\text{rā}\) affect the temporal interpretation of Guaraní noun phrases. Consider the examples in (30) where noun phrases are marked with \(-\text{kue}.

\[30\]

a. \([\text{Poss, TU} \prec \text{RT}]\) \(t_n = \text{RT}\)

Context: Speaker is giving instructions to a game that involves people moving around.

\(\text{Che a-ha-ramo nde re-ju che-renda-gue-pe.}\)
\(\text{O1sg A1sg-go-COND B2sg A2sg-come B1sg-place-KUE-PE}\)

‘When I go, you come to my former place (i.e. the place that I am at now).’ \[E\]
b. \([N, RT ≺ TU] \quad t_n = TU\]

Che-mitā-me ko pa’i-kue o-ñe’ē gueteri iglesia-pe.
O1sg-child-PE this priest-KUE A3-speak still church-PE

‘When I was a child, this former priest still spoke in church.’ [E]

c. \([RT ≺ N ≺ TU] \quad t_n = TU\]

Pe pa’i-kue h-eñoi 1960-pe.
that priest-KUE 3-born 1960-PE

That ex-priest was born in 1960.’ [E]

We observe that in these examples the nominal or possessive predication is interpreted at the time of utterance TU (30a), the reference time RT (30b) and a contextually given time that is neither the time of utterance nor the reference time (30c). Thus, the nominal or possessive predication of noun phrases marked with –kue can be interpreted relative to the same three times as noun phrases that are not marked with –kue (29). Likewise, the nominal time \(t_n\) at which the noun phrase (and hence the complex property ‘KUE(P)’) is interpreted is not fixed: it is the reference time in (30a) and the time of utterance in (30b) and (30c). In conclusion, as predicted by the meaning of –kue in (22), –kue does not restrict the nominal time \(t_n\) at which noun phrases are temporally interpreted.

The examples in (31) illustrate the same for noun phrases marked with –rā.

(31) a. \([RT ≺ TU, Poss] \quad t_n = RT\]

Kuehe a-jogua che-syrykoi-rā.
yesterday A1sg-buy B1sg-motorbike-RA

‘Yesterday I bought my motorbike.’ [E]

b. \([TU ≺ R, Poss] \quad t_n = TU\]

A-topa-ta nde-termo-rā.
A1sg-find-TA B2sg-thermos-RA

‘I will find a thermos for you.’ [E]

I have not been able to construct examples where the nominal time of a noun phrase marked with –kue or –rā is a contextually given time other than the reference time or the utterance time. I do not attribute this to a restriction on the nominal time but rather to the fact that such a resolution require a (temporally highly complex) context with four distinct times: the reference time, the time of utterance, a time to which the nominal time is resolved and a time \(t'\) prior or subsequent to the nominal time.
The nominal or possessive predication is interpreted at the reference time in (30a), the time of utterance in (30b) and another contextually given time in (30c). Again, the nominal time \( t_n \) relative to which the noun phrases marked with \(-r\text{a}\) is either the reference time (30a,c) or the time of utterance (30b). I conclude that neither \(-kue\) nor \(-r\text{a}\) affect the time relative to which Guaraní noun phrases are interpreted. Instead, the nominal time \( t_n \) is a contextually given time, just like for English or German noun phrases.

1.3.2 Locating the nominal predication

This section examines whether the time \( t' \) at which the nominal or possessive predication is true of the individuals denoted by the noun phrase can be contextually restricted or explicitly modified. Recall that the analyses of \(-kue\) and \(-r\text{a}\) developed in section 1.2 predict that this should not be possible since the time \( t' \) is existentially quantified over. I restrict my discussion to \(-kue\) but parallel data exist for \(-r\text{a}\). I illustrate that the time \( t' \) cannot be located by a noun-phrase internal modifier, nor through the discourse context. Consider first the interpretation of the example in (32) where the modifier \( o\text{chenta-gua} \) (eighties-of) ‘of the eighties’ modifies the nominal predicate.

(32) Context: Who is happy?

\[
\begin{align*}
\text{Mbo'\text{e}-ha-ra} & \quad \text{o\text{chenta-gua} o-vy'a.} \\
\text{teach-NOM-AG} & \quad \text{eighty-of} \\
\text{A3-happy} &
\end{align*}
\]

‘Teachers of the eighties are happy.’

According to my consultants, (32) expresses that individuals who were teachers in the eighties are happy now. In other words, the modifier \( o\text{chenta-gua} \) (eighty-of) ‘of the eighties’ locates the
nominal time $t_n$ at which the noun phrase is interpreted. For our purposes, the interesting cases are noun phrases that contain such modifiers and are marked with –kue or –rã:

(33) Context: Who is happy now?

Mbo’e-ha-ra-kue ochenta-gua o-vy’a.
teach-NOM-AG-KUE eighty-of A3-happy

‘Former teachers of the eighties are happy.’ [E]

According to my consultants, (33) expresses that individuals who were former teachers in the eighties, i.e. teachers prior to the eighties, are happy now. Thus, as predicted by the analysis of –kue, the temporal modifier locates the nominal time $t_n$ and the location of the time $t'$ prior to the nominal time is not further specified (but existentially asserted).

To examine whether the time $t'$ can be contextually located, I examined whether the time $t'$ was contextually located for any occurrences of –kue or –rã in the texts in my corpus and in books like Aguilera (1998). I did not identify any naturally occurring examples in which this was the case, and constructed examples to explore this question with my consultants. One constructed example is given in (34).

(34) Ambue ary-pe peteï doytor-kue o-mo-nguera iñ-angiru-pe i-mba’asy.
other year-PE one doctor-KUE A3-CAUS1-healthy 3-friend-PE 3-sickness

‘Last year, an ex-doctor healed his friend’s sickness.’

The verbal modifier ambue ary-pe (other year-PE) ‘last year’ in (34) introduces a time into the discourse context that is highly salient for the interpretation of (34). The reference and situation time of the verbal predicate o-mo-nguera ‘heal’ is constrained by this time. If the time $t'$ could be constrained by contextually salient times, we would expect an interpretation of (34) to be possible according to which the individual was a doctor at the time at which he healed his friend (i.e. the time $t'$ is the situation/reference time of the verb). However, when asked about the interpretation of such examples, my consultants strongly prefer an interpretation where the location of the time $t'$ is not specified and, instead, the nominal time $t_n$ is located by the contextually salient time.
instance, my consultants strongly prefer an interpretation of (34) according to which the individual who healed his friend last year was a former doctor at the time of the healing (i.e. the nominal time \( t_n \) is the reference/situation time and the time \( t' \) is an unspecified time prior to the nominal time). This interpretation arises despite the fact that it could have been argued that it would be more plausible for a doctor to heal his friend than a former doctor.

Since I did not find naturally occurring examples that would suggest that the time \( t' \) could be located, either via a noun phrase-internal modifier or contextually, and constructed examples like (34) also did not lead to an explicit localization of the time \( t' \), I conclude that the analyses of \(-kue\) and \(-rã\) correctly predict that the time \( t' \) is not locatable.

### 1.4 Conclusions

The Guaraní nominal temporal markers \(-kue\) and \(-rã\) are typically described as expressing a past or future time oriented precedence relation (Gregores and Suárez 1967, Liuzzi 1987, Liuzzi and Kritchuk 1989, Velázquez-Castillo 1996, Nordhoff 2004, Nordlinger and Sadler 2004). This section has illustrated that both markers have further meaning properties, namely the CHANGE (of state) and EXISTENCE meaning properties. I proposed a semantic analysis of the meanings of the two markers that accounted for the cooccurrence restrictions that \(-kue\) but not \(-rã\) exhibits with several semantic noun classes. With respect to the temporal interpretation of noun phrases, the data discussed in this section reveal that the two Guaraní nominal temporal markers do not restrict the nominal time \( t_n \) at which a noun phrase is interpreted. This finding is in accordance with the observation that Guaraní noun phrases, whether marked with \(-kue\) or \(-rã\) or not, exhibit the same interpretational freedom as noun phrases in English and German.

Having accomplished the goal of giving a first approximation of the meaning of the Guaraní nominal temporal markers, the next section addresses the question of whether the Guaraní markers warrant being called nominal tenses. One might of course ask why, having identified what the Guaraní markers mean and how they contribute to the temporal interpretation of Guaraní noun phrases, it matters whether they should be classified e.g. as tense, grammatical aspect, modality, or
a combination thereof? I propose that there are two reasons for pursuing this question. The first is that the analysis developed in this section, for the first time, allows us to assess whether the Guaraní nominal temporal markers indeed behave like tense markers, as has been previously assumed. This evaluation in turn allows us to make a broader reassessment of the claim in the literature that there are nominal tenses. The second reason for wanting to determine the precise status of the Guaraní nominal temporal markers is that it provides a basis for comparing the temporal interpretation of noun phrases and verb phrases. Ultimately, we would like to know the extent to which the temporal interpretation of the two types of phrases is alike.

2 Are Guaraní –kue and –rã nominal tenses?

A difficulty in assessing whether nominal temporal markers behave like verbal tenses is that there are several different characterizations of the meaning of verbal tense in contemporary semantic literature. On one widespread view (cf. Smith 1991, Kamp and Reyle 1993, Klein 1994), tense markers encode the relation between the reference time and the utterance time, while others (e.g. Zagona 1995, Stowell 1996) maintain that tense markers can encode the relation between the utterance time and the situation time of an eventuality. An assessment of whether nominal temporal markers are nominal tenses therefore needs to take into consideration several characterizations of verbal tense markers. This is especially true since none of the authors who suggest that nominal temporal markers are nominal tenses specify which characterization of verbal tense they assume in making this claim.

2.1 Three characterizations of verbal tense markers

The three most prominent characterizations of verbal tense markers differ with respect to the times that verbal tense markers relate. The three times involved in the characterizations are the situation time of the eventuality, the reference time, and the utterance time. Since verbal tense markers in some languages, like Korean and Japanese, need not be deictic (i.e. need not involve the utterance
time), I use the more general notion of ‘perspective time’ (cf. Smith 1991) to subsume both deictic and non-deictic tenses: the perspective time of a non-embedded clause is the utterance time, and the perspective time of an embedded clause in languages like Korean and Japanese may be a time provided by the matrix clause (distinct from the utterance time), while in languages like English it is the utterance time (cf. Enç 1987, Gennari 2003). To illustrate, consider the following Japanese example.¹⁴

> (35) Taro-wa Hanako ga Siatoru-ni i-ru to it-ta.
> Taro-top. Hanako nom Seattle-in be-pres that say-past.
> ‘Taro said that Hanako was in Seattle.’ (Gennari 2001:75)

The present tense –ru in the embedded clause is interpreted not relative to the utterance time but relative to the past time of the matrix clause: (35) expresses that Hanako is in Seattle at a time that overlaps with this past time, not with the utterance time of the matrix clause.

I refer to the three characterizations of verbal tense markers that are most prominent in the semantic literature as tense-1, tense-2, and tense-3:¹⁵

1. **Tense-1**: Verbal tense markers express the relation between the reference time and the perspective time (e.g. Smith 1991, Kamp and Reyle 1993, Klein 1994).

¹⁴Gennari (2001) uses the following glosses in this example: –top = topic marker, nom = nominative case, –pres = present tense, –past = past tense.

¹⁵Theoretical proposals regarding the meaning of tense markers also differ in other ways. For instance, tense markers are assumed to assert a tense relation in e.g. Comrie (1985), Chung and Timberlake (1985), Dowty (1982), Hinrichs (1986), while others (e.g. Stone 1997, Kratzer 1998, Bittner to appear) assume that tense markers presuppose the tense relation. Since such differences do not immediately bear on the question of whether the nominal temporal markers behave like tenses, I ignore them here.
2. **Tense-2**: Verbal tense markers can express the relation between the perspective time and the situation time (e.g. Zagona 1995, Stowell 1996).

3. **Tense-3**: Verbal tense markers express the relation between the perspective time and the reference time (as in tense-1 characterizations) or between the reference time and the situation time (e.g. Comrie 1985).

The three characterizations of verbal tense markers are illustrated with (36).

(36) Yesterday, John went to the zoo.

According to the tense-1 characterization, the past tensed verb *went* in (36) locates the reference time (which is additionally constrained by the temporal adverb *yesterday*) prior to the perspective time (which is the utterance time here). The location of the situation time of John’s going to the zoo in turn is located by the grammatical aspect relation between the reference time and the event time (here, an inclusion relation). The tense-2 characterization, on the other hand, assumes that the past tensed verb *went* locates the situation time of John’s going to the zoo prior to the utterance time. The tense-2 characterization is restricted to examples that do not feature a perfect aspect (cf. Zagona 1995, Stowell 1996): in examples with a perfect aspect, tense markers are assumed to encode a relation between the utterance time and the reference time, just like tense-1 characterizations. The tense-3 characterization does not differ from tense-1 with respect to examples like (36). Examples like (37) bring out the difference between the tense-1 and tense-3 characterizations:

(37) At 6pm, John had already eaten.

In (37), the reference time is prior to the utterance/perspective time (due to the past tensed verb *had*) and the situation time is prior to the reference time (due to the perfect construction). The tense-1

---

16Verbal tense markers under this proposal express a relation between the perspective time and the situation time only if there is no perfect marker. If there is a perfect marker, like *had* in *John had danced*, verbal tense markers are assumed to express a relation between the perspective time and the reference time, as in the tense-1 characterizations. I comment on this below.
characterization assumes that only the former relation, i.e. that between the utterance/perspective time and the reference time, is a tense relation. Under the tense-3 characterization, on the other hand, both the relation between the utterance and the reference time, and that between the reference and the situation time are considered tense relations. (The latter is considered a grammatical aspect relation in theories that assume tense-1 characterizations, e.g. Klein 1994.)

In the remainder of the section, I identify semantic properties of verbal tense markers under the three characterizations, and compare these properties to those of the Guaraní nominal markers.

2.2 Do Guaraní –kue and –rā behave like verbal tense-1 markers?

There are (at least) five properties which follow from the characterization of verbal tense-1 markers as specifying a relation between the perspective time and the reference time. These five properties are compared in the course of this section to the properties of the Guaraní nominal temporal markers –kue and –rā on the basis of the analysis developed in section 1.

2.2.1 Tense-1 markers do not exhibit semantic restrictions

The first property of tense-1 markers to be discussed here is that they do not exhibit restrictions with particular types of verbs (or verb phrases). For instance, a tense-1 marker cannot specify that it may only cooccur with telic verb phrases. I assume that a (tense) marker can be restricted to a particular set of entities only if the marker has access to the semantic properties of the entities. Tense-1 markers, however, express a relation between the perspective and reference time. Crucially, they do not have access to the eventuality description and hence cannot express semantic restrictions on the eventuality descriptions they may (not) apply to.

If verbal tense-1 markers do not exhibit semantic restrictions with particular types of verbs or verb phrases, we also do not expect nominal tenses, if they are supposed to behave like verbal tenses, to exhibit restrictions when combined with particular semantic noun classes. However, as illustrated in section 1, Guaraní –kue exhibits systematic cooccurrence restrictions with nouns
denoting individual-level properties and relations, as well as with food artifacts (cf. Table 1). It follows that –kue does not behave like a tense marker according to this first property of tense-1 markers. The behavior of –rā, on the other hand, is compatible with that of a tense marker since –rā does not exhibit cooccurrence restrictions.

2.2.2 Distinct tense-1 markers do not cooccur

A second property of verbal tense-1 markers is that distinct tense-1 markers do not cooccur. This follows from the fact that two cooccurring tense-1 markers would express contradicting relations between the reference time and the perspective (or utterance) time.

In contrast to verbal tense-1 markers, Guaraní –kue and –rā may cooccur:

(38) A-hecha pa’i-rā-ngue-pe.
     A1sg-see priest-RA-KUE-PE
     ‘I am seeing the former future priest.’ [E]

(38) expresses that the speaker is seeing somebody who at some time in the past wanted to become a priest (i.e. was a pa’i-rā ‘priest-RA’ in the past) but has since failed in this endeavor (i.e. did not become a priest). Guaraní –kue and –rā only cooccur in the order given in (38): *–kue-rā is unattested and examples with *–kue-rā are considered ungrammatical by my consultants. Since the two markers may cooccur as –rā-ngue, we can conclude that they are not both tense-1 markers since they should not cooccur if they were.

17The fact that Guaraní –kue and –rā may cooccur was also noted in Nordlinger and Sadler (2004), which refers this phenomenon as ‘tense stacking’. Nordlinger and Sadler (2004) assumes that in –rā-ngue the ‘outer tense’ –kue has scope over the ‘inner tense’ –rā. As discussed in this section, the proposal that tenses can stack is only compatible with tense-3 proposals. One would furthermore have to assume that inflections may take scope over each other, which is not uncontroversial if inflections are characterized as contributing syntactically conditioned information.
2.2.3 Tense-1 markers do not encode a state change

A third semantic property of verbal tense-1 markers is that they do not encode a state change. I assume that a temporal expression (e.g. a temporal affix) encodes a state change if the meaning of the expression entails that the eventuality description (in the case of verbal markers) is true at one time and false at another. For instance, a temporal expression A that attaches to the verb ‘sing’ as in John sing-A encodes a state change if John sing-A is entailed by A to be true at time t and false at time t'. The inability of verbal tense-1 markers to encode a state change follows from the fact that they encode a precedence relation between the reference and the perspective time. Crucially, they cannot locate the situation time of the eventuality description in relation to the reference or the perspective time.

As discussed in section 1, both –kue and –rā have the CHANGE meaning property, i.e. encode a state change: –kue, for instance, requires the nominal or possessive predication to be true at a time t’ prior to the nominal time t_n and also requires that the predication becomes false before t_n. Hence, the two Guaraní nominal temporal markers do not behave like verbal tense-1 markers with respect to this third property.

2.2.4 The denotation of tense-1 markers is restricted by temporal modifiers

A fourth property of verbal tense-1 markers is that their denotation is restricted by temporal modifiers. Two examples that illustrate this property are given in (39).

(39)  
   a. Last night, Matt partied with his friends.
   b. Matt partied with his friends every weekend during the summer.

18In order for a temporal expression to have this property, it is not sufficient for the expression to entail that the eventuality description is true at t and to implicate that the eventuality description is false at t’. This weaker property is true, for instance, of the English past tense, as discussed in section 1 for example (8).
In (39a), the past tensed verb *partied* locates the reference time prior to the perspective (utterance) time and the temporal adverb *last night* denotes a time that is located prior to the utterance time. (39a) is understood to express that Matt’s partying happened during the time denoted by *last night*: in other words, the past tense relation is restricted by the temporal adverb to the time denoted by the temporal adverb. The same restriction is illustrated in (39b). Here, the temporal adverb *every weekend during the summer* restricts the location of the (past) reference time to times denoted by the temporal adverb. Thus, a fourth property of tense is that temporal modifiers further constrain the location of the reference time, the time that is located relative to the perspective/utterance time (Hinrichs 1986, *inter alia*).

If Guaraní –kue and –râ behaved like tense-1 markers we would expect the location of the time \( t' \) to be similarly restrictable by noun phrase-internal temporal modifiers. I demonstrated in section 1 that this is not the case for –kue, using the example in (33), repeated below:

(40) Context: Who is happy now?

Mbo’e-ha-ra-\textit{kue} ochenta-gua o-vy’a.
teach-NOM-AG-KUE eighty-of A3-happy

‘Former teachers of the eighties are happy.’

As discussed above, the noun phrase-internal modifier \textit{ochenta-gua} ‘of the eighties’ does not constrain the location of the past time \( t' \) at which the nominal predication is interpreted. (Parallel examples exist for \textit{râ}.) I conclude that the Guaraní nominal temporal markers do not behave like tense-1 markers according to this fourth property.

2.2.5 The tense-1 relation may be contextually determined

One of the central properties of tense is that its denotation may be contextually determined by anaphorically resolving the reference time to a contextually given time (Partee 1984, Kamp and Reyle 1993). Examples that illustrate this property of verbal tense-1 markers are given in (41) (from Partee 1984:245-6).

37
(41)  

a. Sheila had a party last Friday and Sam got drunk.

b. Mary woke up some time during the night. She turned on the light.

The eventuality description ‘Sheila have a party’ of the first conjunct in (41a) is located at the (past) time denoted by the temporal adverb last Friday. The eventuality description of the second conjunct is located in the past by the past tensed verb got (drunk). The way the second conjunct is interpreted, however, is that Sam’s getting drunk is not just located at any time in the past, but at the time of Sheila’s party, i.e. during the time denoted by last Friday. This suggests (as noted by Partee 1973, 1984), that the reference time of the second conjunct is contextually resolved to the time given by the first conjunct. The example in (41) illustrates the same process: Mary’s turning on the light did not happen at some time in the past, but it happened at the past time at which she woke up during the night. Thus, a fifth property of verbal tense-1 markers is that the reference time may be contextually determined.

If Guaraní –kue and –rā would behave like verbal tense-1 markers with respect to this property, we would expect the time t′, the time that is located by –kue and –rā prior and subsequent to the nominal time t₀, to be contextually determinable, too. As discussed in section 1, there are no naturally occurring examples that would suggest that the time t′ can be contextually determined, and examples that were constructed to examine whether t′ could be contextually determinable were given an interpretation by my consultants where the time t′ was an unspecified time, as predicted by the analysis. I therefore conclude that Guaraní –kue and –rā do not behave like verbal tense-1 markers with respect to the fifth property.

It is useful here to consider what it would mean for the time t′ to be contextually determinable. To illustrate this, consider the discourse in (42).

(42)  

a. Context: I want to buy my sister a bike.

‘Yesterday I went to a bike shop and of all the bikes they had there I chose one for my sister.’

b. #Ko’ë-ramo a-ha-jevy-ta a-jogua-ha-guā pe bisikleta-kue.
dawn-COND A1sg-go-return-TA A1sg-buy-NOM-PURP that bike-KUE
(Intended: Tomorrow I’ll go back to buy that bike.)

Consultant’s comments: Sounds like you’re going to buy a bike that doesn’t work anymore, an ex-bike.

(42a) introduces an entity to the discourse context of which the property ‘bike’ is true at the reference time of the verb (i.e. the nominal time $t_n$ is resolved to the reference time). In (42b), which was intended to convey that the speaker would return to the store to buy the bike that s/he had picked out the previous day, the marker –kue occurs on the noun phrase pe bisikleta ‘that bike’. If the time $t'$ that –kue locates prior to the nominal time of the noun phrase pe bisikleta ‘that bike’ in (42b), we would expect the time $t'$ to be identified with the contextually given nominal time $t_n$ of (42a). In other words, we would expect the entity referred to in (42b) to be a bike during the same time as the entity referred to in (42a). As indicated, my consultants consider (42b) infelicitous in this discourse context. Their comments suggest that the reason for this infelicity is that (42b) expresses that what the speaker is going to buy was a bike in the past but is not a bike anymore when s/he buys it. This, of course, is due to the CHANGE meaning property of –kue: even if the time $t'$ could be contextually resolved to the nominal time of (42a), the meaning of –kue would still require the property ‘bike’ to cease to be true of the bike prior to the utterance time because of the CHANGE property.

2.2.6 Summary

The comparison between the five properties of verbal tense-1 markers and the Guaraní nominal temporal markers is summarized in Table 2:

Table 2 indicates that most of the properties of verbal tense-1 markers are not shared by Guaraní –kue and –ra. Neither –kue nor –ra has properties (iii)-(v) and –kue also does not have property
(i) do not exhibit semantic restrictions

(ii) two distinct tenses cannot cooccur

(iii) do not encode a state change

(iv) denotation restricted by temporal modifiers

(v) denotation may be anaphorically determined

Table 2: Five properties of tense-1 markers compared to the properties of Guaraní –kue and –rā

(i). The fact that –rā does not exhibit cooccurrence restrictions (property (i)) does not exclude it from being a tense-1 marker but is not evidence in favor of –rā being a tense marker either since other types of temporal expressions, such as grammatical aspect and modal markers, also need not exhibit cooccurrence restrictions. In the row for property (ii), the marking ‘*/✓ ↔ */✓’ is supposed to indicate that at most one of the two markers could be a tense marker: if –kue is a tense marker, –rā cannot be one, and vice versa, as discussed above. But even if one marker is not a nominal tense, this does not provide positive evidence that the other one is. I conclude that the Guaraní nominal temporal markers are not nominal tenses, if nominal tenses are supposed to behave like verbal tense-1 markers.

2.3 Do Guaraní –kue and –rā behave like verbal tense-2 markers?

Verbal tense-2 markers are assumed to encode a relation between the perspective/utterance time and the situation time of the eventuality. Of the five properties of tense-1 markers, verbal tense-1 markers have properties (i), (ii) and (iv). They have property (i), which states that tenses do not exhibit semantic restrictions, since tense-2 markers do not have access to the eventuality description either, but only to its situation time. Hence, tense-2 markers cannot express a semantic restriction to particular semantic types of eventuality descriptions. Tense-2 markers have property (ii), which states that distinct tense markers cannot cooccur, because two distinct tense-2 markers would express contradicting relations between the perspective time and the event time. To illustrate that
property (iv), which states that the denotation of tenses is constrained by temporal modifiers, holds of tense-2 markers consider (39a), repeated here:

\[(43)\] Last night, Matt partied with his friends.

Under the tense-2 proposal, the past tense verb partied locates the situation time of ‘Matt party with his friends’ prior to the perspective time, which is the utterance time here. The tense-2 proposal must allow the temporal modifier last night to further constrain the location of the situation time since (43) conveys that Matt’s partying took place last night. Hence, property (iv) holds for tense-2 markers, too.

Verbal tense-2 markers do not have properties (iii) and (v). They do not have property (iii), which specifies that tense markers cannot encode a state change, because tense-2 markers, by virtue of locating the situation time in relation to the perspective/utterance time, can in fact entail that the situation time is true at one time and false at another (e.g. at the perspective/utterance time for a past tense-2 marker). That verbal tense-2 markers do not have property (v) simply follows from the fact that this property refers to the reference time, which is not part of the characterization of tense-2 markers. (One could argue that this is a weakness of the tense-2 characterization since it does not allow one to capture Partee’s insight that the tense denotation can be contextually determined. Since the main point of this section is to assess whether the Guaraní markers behave like tense markers, I will not pursue this matter here.)

Table 3 compares the properties of verbal tense-2 markers to the properties of the Guaraní nominal temporal markers.

Guaraní –kue does not have properties (i) and (iv) and Guaraní –rã does not have property (iv). Again, maximally one of –kue and –rã can be said to behave like tense-2 markers with respect to property (ii). The quantity of properties on which verbal tense-2 markers differ from Guaraní –kue and –rã is not as striking as for verbal tense-1 markers. Consider, however, what it would mean to claim that Guaraní –kue and –rã are nominal tenses that behave like verbal tense-2 markers. It would mean that the nominal time t_n (relative to which the time t’ is located) should have the
properties of tense-2 markers

<table>
<thead>
<tr>
<th></th>
<th>–kue</th>
<th>–rā</th>
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</thead>
<tbody>
<tr>
<td>(i) do not exhibit semantic restrictions</td>
<td>*</td>
<td>✓</td>
</tr>
<tr>
<td>(ii) two distinct tenses cannot cooccur</td>
<td>*/✓ ← → */✓</td>
<td></td>
</tr>
<tr>
<td>(iii) do not encode a state change</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>(iv) denotation restricted by temporal modifiers</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>(v) denotation may be anaphorically determined</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

Table 3: Five properties of tense-2 markers compared to the properties of Guaraní –kue and –rā

characteristics of the perspective time (relative to which the situation time is located). There are several important differences between the nominal time and the perspective time. For one, the nominal time, but not the perspective/utterance time, can be constrained by temporal modifier (cf. e.g. (32) and (33)). Also, if not constrained by a temporal modifier, the nominal time is determined in the discourse context (Enc 1981, Musan 1995, Tonhauser 2002) while the perspective time is a fixed time: the utterance time or a time introduced by a matrix clause. Finally, the nominal times of two noun phrases in the same sentence can be distinct while there is only one perspective time in sentences without embedded clauses:

(44) Every fugitive is back in jail and not happy about it.

In (44), the noun phrase every fugitive is true at a nominal time prior to the utterance time while the noun jail is true at the utterance time. In contrast, the perspective time of both verbal predicates be back and be not happy is the same time. In conclusion, the Guaraní nominal temporal markers share some properties with verbal tense-2 markers but ultimately we would not want to claim that they are nominal tenses because of the striking differences between the nominal time and the perspective time.
2.4 Do Guaraní –kue and –rā behave like verbal tense-3 markers?

Verbal tense-3 markers express the relation between the perspective time and the reference time or between the reference time and the situation time. Verbal tense-3 markers do not have property (ii): distinct verbal tense-3 markers can cooccur since they can express relations between three distinct times (e.g. between the perspective and the reference time, and between the reference and the situation time). Just like verbal tense-2 markers, tense-3 markers also do not have property (iii) since the relation between the reference and the situation time can encode a state change. Tense-3 markers do, however, have properties (i), (iv) and (v). Table 4 compares the properties of tense-3 markers to those of Guaraní –kue and –rā.

<table>
<thead>
<tr>
<th>properties of tense-3 markers</th>
<th>–kue</th>
<th>–rā</th>
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<tbody>
<tr>
<td>(i) do not exhibit semantic restrictions</td>
<td>*</td>
<td>✓</td>
</tr>
<tr>
<td>(ii) two distinct tenses cannot cooccur</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>(iii) do not encode a state change</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>(iv) denotation restricted by temporal modifiers</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>(v) denotation may be anaphorically determined</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

Table 4: Properties of tense-3 markers compared to the behavior of Guaraní –kue and –rā

Guaraní –kue does not share any of the three properties of verbal tense-3 markers, and –rā shares two of the three. I conclude that there is no evidence to support that the Guaraní nominal temporal markers behave like verbal tense-3 markers.

2.5 Conclusions

Inspired by the claim that Guaraní –kue and –rā are nominal tenses (Liuzzi 1987, Liuzzi and Kirtchuk 1989, Nordhoff 2004, Nordlinger and Sadler 2004), I have compared the meaning of the Guaraní markers to that of verbal tenses, taking into consideration several characterizations of verbal tenses. I identified three properties that tense markers do not have, and found that Guaraní
–kue and –rã do exhibit these properties: these include the property (i) ‘tense markers do not exhibit cooccurrence restrictions’, (ii) ‘distinct tense markers do not cooccur’, and (iii) ‘tense markers do not encode a state change’. One might argue that this merely illustrates that the Guaraní markers are not pure tenses, but might be combined tense/grammatical aspect markers. The fact, however, that the Guaraní markers do not have properties (iv) ‘the denotation of a tense marker is restricted by temporal modifiers’ and (v) ‘the denotation of a tense marker may be anaphorically determined’ is what carries most weight in my conclusion since (iv) and (v) are properties that we would expect both pure tenses and combined tense/grammatical aspect markers to exhibit. In sum, I found that there is little to no basis for the claim that the Guaraní markers are nominal tenses and suggest that calling the Guaraní nominal temporal markers nominal tenses is not empirically justified.

3 Concluding remarks and questions for future research

The study of the temporal interpretation of noun phrases, a topic that has so far been conducted only on the basis English, German and St’at’imcets (Enç 1981, Musan 1995, Demirdache 1996, Tonhauser 2002), has been extended in this paper to Guaraní, a language with two nominal temporal markers. I have proposed that, just like in English and German, the nominal time \( t_n \) at which a noun phrase is interpreted is contextually determined in Guaraní and not restricted by the nominal temporal markers –kue and –rã.\(^\text{19}\) The paper also presented the first detailed semantic study of nominal temporal markers of any language: the semantic analysis I developed in section 1 is based on a careful examination of the lexical semantic, semantic, and discourse meaning properties of the Guaraní markers –kue and –rã. On the basis of this semantic analysis, section 2 re-assessed the claim that the Guaraní markers are nominal tenses. I concluded that the Guaraní markers do not behave like verbal tenses and, contrary to previous literature, should not be called nominal tenses.

As discussed in the conclusions to section 1, the assumption that there are languages with nominal tenses has been taken by several authors as evidence that the temporal interpretation of \(^\text{19}\)Demirdache (1996) claims that the nominal time \( t_n \) is not contextually resolved for St’at’imcets noun phrases but see Tonhauser (2006) for counterexamples.
noun phrases involves a nominal tense relation (e.g. Lecarme 1996, Wiltschko 2003). Since at least the Guaraní markers turn out not to be nominal tenses, one of the implications of the study presented in this paper is that Guaraní does not provide empirical evidence for the existence of a nominal tense relation. What about the other 15 some languages and language families that have been reported to have nominal temporal markers? For these, too, the claim has been made that the markers are nominal tenses, most notably in Nordlinger and Sadler’s (2004) Language paper. Table 5 gives an overview of the languages for which the claim has been made and the papers that contain the claim for a particular language (family). (NS04 stands for Nordlinger and Sadler (2004).)

<table>
<thead>
<tr>
<th>Language</th>
<th>Family</th>
<th>Paper(s) with nominal tense claim</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tariana</td>
<td>Arawak</td>
<td>Aikhenvald 2003, NS04</td>
</tr>
<tr>
<td>Tupinamba</td>
<td>Tupí-Guaraní</td>
<td>Lehmann and Moravcsik 2000, NS04</td>
</tr>
<tr>
<td>Hixkaryana</td>
<td>Carib</td>
<td>Derbyshire 1996, NS04</td>
</tr>
<tr>
<td>Iatê</td>
<td>Macro-Jé</td>
<td>NS04</td>
</tr>
<tr>
<td>Nambiquara</td>
<td>Nambiquaran</td>
<td>Lowe 1999, Kroeker 2001, NS04</td>
</tr>
<tr>
<td>Potowatomi</td>
<td>Algonquian</td>
<td>NS04</td>
</tr>
<tr>
<td>Kwakw’ala</td>
<td>Northern Wakashan</td>
<td>NS04</td>
</tr>
<tr>
<td>Halkomelem</td>
<td>Salish</td>
<td>Burton 1997, Wiltschko 2003, NS04</td>
</tr>
<tr>
<td>Jarawara</td>
<td>Arawá</td>
<td>Dixon 2004, NS04</td>
</tr>
<tr>
<td>Warí’</td>
<td>Chapakura</td>
<td>NS04</td>
</tr>
<tr>
<td>Movima²²</td>
<td>isolate, Bolivia</td>
<td>Haude 2004</td>
</tr>
<tr>
<td>Mawayana</td>
<td>Arawak</td>
<td>Carlin 2006</td>
</tr>
</tbody>
</table>

Table 5: Languages Claimed to Have Nominal Tenses

²¹See Tonhauser (2006) for a view on the similarities and differences between the temporal interpretation of noun phrases and verb phrases.
As mentioned above, none of the authors who claim that the nominal temporal markers of some language are nominal tenses supports this claim with a formal analysis or a comparison of the behavior of the nominal temporal markers to that of verbal tenses. Thus, while the claim that nominal tenses exist is an interesting one, it is currently not empirically supported. One cannot assume that a nominal marker is a nominal tense just because it encodes a precedence relation, since markers of other semantic categories (like grammatical aspect and modality) can also encode a precedence relation (Smith 1991, Klein 1994). For some of the languages listed in Table 5, there is so little data available that it is even hard to judge whether the markers are of a temporal nature, let alone to judge whether they are nominal tenses or not (e.g. Nambiquara (Lowe 1999, Kroeker 2001) and Kwakw’ala (Anderson 1985)). For those for which sufficient data is available to judge that the markers are temporal markers, the data is not sufficient to fully determine the meaning properties of the markers in the way it was done for Guaraní in section 1. To illustrate, consider the nominal temporal markers of Tariana (Arawak, Brazil), which are discussed in Aikhenvald (2003).²³

(45) a. pi-Ruku pi-uka hī
down 2sg-arrive DEM:ANIM
panisaru-miki-Ri-naku
abandoned.village-NOM.PAST-NF-TOP.NON.A/S 2sg+order 2sg-vomit-IMPV
‘When you come to an abandoned ex-village, order (him) to vomit.’ (Aikhenvald 2003:187)

b. diha di-sa-do-pena
dila di-a di-ka-tha-pidana
he 3sgnF-spouse-FEM-NOM.FUT near 3sgnF-go 3sgnF-see-FR-REM.P.REP
‘He went (in vain) to look at his wife-to-be.’ (Aikhenvald 2003:184)

²²Lecarme (1996, 1999, 2004) proposes that Somali has nominal temporal markers that are nominal tenses. As discussed in Tonhauser (2006), the empirical and theoretical evidence presented in Lecarme’s work that the Somali markers are of temporal nature is not convincing.

²²Haude 2006 revises the claim that Movima has a nominal past tense and instead analyzes the marker as encoding the non-existence of the entity denoted by a noun phrase.

²³The following glosses are used in the examples: 2sg = 2nd person singular, 3sgnF = 3rd person singular non-feminine, ANIM = animate, DEM = demonstrative, FEM = feminine, FR = frustrative, NF = non-feminine, NOM.FUT = nominal future, NOM.PAST = nominal past, REM.P.REP = remote past reported, TOP.NON.A/S = topical non-[subject].
(45a), which features the nominal marker \(-miki\) on the noun \(\text{panisaru} \) ‘village’, expresses that the entity denoted by the noun phrase marked with \(-miki\) was a village in the past and is not anymore. In (45b), the marker \(-pena\) is realized on the noun \(\text{di-sa-do} \) ‘his wife’ to indicate that the person the man went to see was not yet his wife but might become his wife in the future. These Tariana examples are remarkably similar to the Guaraní examples in (2). As discussed in more detail in Tonhauser (2006), the Tariana data and Aikhenvald’s description of the two markers at least suggest that the two Tariana nominal temporal markers have the CHANGE meaning property (i.e. they entail that the nominal or possessive predication is true at one time and false at the nominal time). (45a) conveys that the entity was a village in the past and is not a village anymore at the reference time, and the woman referred to in (45b) is not the man’s wife at the reference time but might become his wife in the future. According to Aikhenvald (2003:181), the ‘nominal future tense’ suffix \(-pena\) “is used to mark ‘future’ on nouns” and \(-miki\) “is used to refer to a previous state of the head noun” and “could be translated with English \(\text{ex-}\), as in \(\text{ex-husband}\)” (Aikhenvald 2003:185). While this is certainly not conclusive evidence that the two Tariana markers are nominal tenses, it suggests that the claim that they are nominal tenses is not uncontroversial and needs to be carefully examined for the Tariana markers as well as for the other languages in Table 1 along the lines of the way in which it was examined for Guaraní \(-kue\) and \(-râ\) in this paper.

Although this paper has focused on Guaraní nominal markers, the five properties of tense markers that I identified in the last section (three negative ones, two positive ones) can be applied to determining the semantic category of nominal and verbal temporal markers of other languages, too. Now that more and more theoretical semantic analyses of languages other than the well-studied European languages are being developed, it is important to identify criteria by which temporal markers can be classified across languages. My discussion of the meaning of the Guaraní markers has identified how linguists’ intuitions about temporal markers does not always accord with a formal evaluation of their meaning. I would hope that future research identifies additional properties, leading to a more rigorous standard in defining tense and identifying tense markers.
References


