

To appear in:

Proceedings of *Semantics of Under-represented Languages in the Americas* (SULA) III;
GLSA publications: UMass, Michael Becker & Andrew McKenzie (eds).

What is Nominal Tense? A Case Study of Paraguayan Guaraní

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Over the past ten years, several papers have described and analyzed a number of languages with nominal temporal affixes, i.e., grammatical items with temporal properties which attach to noun phrases and affect the temporal interpretation of the noun phrase (cf., e.g., Demirdache 1996, Burton 1997, Lecarme 1999, Nordlinger and Sadler 2000, Wiltschko 2003, Haude 2004, Nordlinger and Sadler 2004, Lecarme 2004). The nominal temporal suffixes of Paraguayan Guaraní are illustrated in (1). The noun phrase *peteĩ óga* ‘a house’ in (1a) is not marked with a temporal suffix, and the sentence means that the entity that is identified by the demonstrative *kova* ‘this’ and the noun phrase *peteĩ óga* ‘a house’ is a house at the utterance time. In (1b) and (1c), the noun phrase is marked with the nominal temporal suffix *-kue* and *-rã*, respectively, which has an effect on the temporal interpretation of the noun phrase. In (1b), the entity that is identified by the demonstrative *kova* ‘this’ is not a house anymore at the utterance time but was a house in the past. In (1c), the entity is not a house yet at the utterance time but is in the process of becoming a house.¹

- (1) a. *Kova ha’e peteĩ óga.*
this COP one house
‘This is a house.’
- b. *Kova ha’e peteĩ óga-kue.*
this COP one house-KUE
‘This is a former house.’
- c. *Kova ha’e peteĩ óga-rã.*
this COP one house-RA
‘This is a future house.’

Linguistic research on temporality has focused almost exclusively on those temporal ex-

¹The English translations of the examples in (1b,c), and throughout the paper, attempt to reflect the fact that it is the noun phrase which is temporally modified, not the copula. Alternative translations of (1b) and (1c) are *This was a house* and *This will be a house*. The following glosses are used in this paper: COP=copula, COND=conditional, CS=causative, PSV=passive, PE= object/oblique marker, PURP=purpose, REL=relative clause marker, TA=irrealis mood, VAERA=deontic modal.

pressions that are associated with verbs and verbal projections. As a consequence, the three categories into which natural language expressions with a temporal meaning are generally divided (tense, aspect and mood) have often received definitions and characterizations that only pertain to the verbal domain. Thus, an immediate question regarding the nominal temporal markers is whether they can be included in one of the temporal categories tense, aspect and mood, or whether a separate nominal temporal category needs to be created. Almost all previous research (see, e.g., the references above) assumes that the nominal temporal markers are nominal *tenses*, but does not justify or formally spell out the analysis, and gives no criteria that distinguish tense, aspect and mood in the nominal domain.

There is an undeniable parallel between the meaning contribution of the nominal temporal affixes and tenses of well-studied languages like English. Just like the nominal suffixes *-kue* and *-rã* in (1) convey that the property *óga* ‘house’ is true for the entity denoted by the noun phrase at a time prior and subsequent to the utterance time, the past and future tenses of English assert that the event denoted by a verb is true prior or subsequent to the utterance time. For example, the event denoted by the verb *sing* is true at the utterance time in (2a) (where the verb is realized in present tense), the event is true prior to the utterance time in (2b) (with *sang* being the past tense realization of the verb), and in (2c) the event is true subsequent to the utterance time (as indicated by the future form *will sing* of the verb).

(2) a. John sings. b. John sang. c. John will sing.

Nevertheless, the apparent similarity of the interpretation of nominal temporal markers and the interpretation of tenses does not suffice to classify the nominal temporal markers as nominal tenses. The temporal literature provides criteria that allow to rigorously distinguish the temporal categories tense, aspect and mood, and these criteria should be applied to the nominal temporal markers. The goals of this paper are to identify how these criteria can be applied in the nominal domain, and to apply them to the nominal temporal markers of Guaraní.² The results of this study support an analysis of the markers as nominal *aspects*, not nominal *tenses* (as has been proposed by Nordlinger and Sadler (2004)). (I do not discuss mood.)

The paper is organized as follows. Section 1 identifies the temporal properties of the nominal temporal markers of Guaraní, and formalizes their analysis as nominal tenses and nominal aspects. After discussing the evidence against the tense analysis that was presented in Tonhauser (2005), new evidence is presented in section 2 (morphological productivity), section 3 (sentence-internal meaning) and section 4 (meaning in discourse). Section 5 summarizes the findings for Guaraní, and presents the category-independent criteria for distinguishing tense and aspect. Section 6 gives pointers for future research.

²The Guaraní data presented in this paper was collected in Paraguay in 2004 (San Lorenzo) and 2005 (San Isidro, Guaira). I thank my consultants Felix Alissio Arce Doldan, Maria de la Cruz Bogado, Mariano Elias Moreira, Mario Ayala Esteche (San Isidro) and Marité Maldonado, Savina Cantero, and Nicolas Cantero (Barcequillo) for their efforts, as well as David Beaver, John Beavers, Cleo Condoravdi, Ashwini Deo, Itamar Francez, Beth Levin and Paul Kiparsky for helpful comments and discussions. All errors are my own.

1 The Guaraní nominal temporal markers *-kue* and *-rã*

In (1) the nominal temporal suffixes modify the temporal interpretation of the property denoted by the noun *óga* ‘house’ of the noun phrase. With possessive noun phrases, the nominal temporal suffixes can additionally modify the temporal interpretation of the possessive relation. For example, in (3), *-kue* and *-rã* are suffixed to the possessive noun phrase *che abuelo aranduka* ‘my grandfather’s book’, and the possessive relation between the grandfather and the book is true for the two entities at the utterance time in (3a), prior to the utterance time in (3b), and subsequent to the utterance time in (3c).³

- (3) a. Kova ha’e che abuelo aranduka.
this COP my grandfather book
‘This is my grandfather’s book.’
b. Kova ha’e che abuelo aranduka-**kue**.
this COP my grandfather book-KUE
‘This is my grandfather’s former book.’
c. Kova ha’e che abuelo aranduka-**rã**
this COP my grandfather book-RA
‘This is my grandfather’s future book.’

1.1 The two meaning properties of *-kue* and *-rã*

As discussed above, a prominent meaning property of the nominal temporal suffixes is to modify the time at which the noun or possessive relation is temporally interpreted. I refer to this meaning property of the suffixes as the TEMPORAL SHIFT property:

- (4) TEMPORAL SHIFT: A noun phrase that is marked with the suffix *-kue* or *-rã* is temporally interpreted such that the relation denoted by the noun or the possessive is true for the individual(s) denoted by the noun phrase at a time t prior to t_c (*-kue*) or subsequent to t_c (*-rã*), where t_c is a contextually given time (e.g., utterance time or reference time).

However, the TEMPORAL SHIFT property alone does not fully capture the meaning of the nominal temporal suffixes. For example, it cannot account for the infelicity of the discourses in (5) and (6). According to the TEMPORAL SHIFT property, the property ‘lawyer’ in (5a) is true for the individual denoted by the noun phrase *peteĩ abogado-kue* ‘a lawyer-KUE’ at a time t prior to t_c (here t_c is the reference time given by the adverb *kuehe* ‘yesterday’), and in (6a) the property ‘lawyer’ is true for the individual denoted by the noun phrase *peteĩ abogado-rã* ‘a lawyer-RA’ at a time t subsequent to t_c . The continuations in (5b) and (6b) both assert that the property ‘lawyer’ is true for the individual denoted by the noun phrase at the reference time. This assertion is not incompatible with the TEMPORAL SHIFT meaning since the property ‘lawyer’ could be true for the individual at t and t_c . Thus, the

³In this example, the nominal temporal suffixes can only apply to the possessive relation because the property denoted by the noun *abuelo* ‘grandfather’ cannot be modified by *-kue* or *-rã* (cf. section 2).

fact that the respective continuations are infelicitous is evidence that *-kue* and *-rã* require the property ‘lawyer’ to be false at the reference time, or, generally, t_c .

- (5) a. Kuehe a-hecha peteĩ abogado-**kue**-pe.
 yesterday I-see one lawyer-KUE-PE
 ‘Yesterday I saw a former lawyer.’
 b. #A-hecha ramo-guare ha’e abogado gueteri.
 I-see COND he lawyer still
 ‘When I saw him he was still a lawyer.’
- (6) a. Kuehe a-hecha peteĩ abogado-**rã**-me.
 yesterday I-see one lawyer-RA-PE
 ‘Yesterday I saw a future lawyer.’
 b. #A-hecha ramo-guare ha’e abogado-ma.
 I-see COND he lawyer-already
 ‘When I saw him he was a lawyer already.’

In order to account for the infelicity of the discourse in (5) and (6), I assume that, in addition to the TEMPORAL SHIFT property, the nominal temporal suffixes have a second meaning property, which I refer to as the CHANGE property.

- (7) CHANGE: A noun phrase that is marked with the nominal suffix *-kue* or *-rã* is temporally interpreted such that the relation denoted by the noun or the possessive marker is not true at t_c for the individual(s) denoted by the noun phrase.

The CHANGE property requires that the property ‘lawyer’ is not true at the reference time for the individual denoted by the noun phrase in (5a) and (6a), respectively, and hence the continuations in (5b) and (6b) are not felicitous.⁴ In the next section I present formal analyses of the nominal temporal suffixes which capture the two meaning properties but differ in that one is a tense analysis and the other is an aspect analysis.

1.2 Tense or aspect? Two analyses of *-kue* and *-rã*

What constitutes a tense analysis and an aspect analysis of *-kue* and *-rã*? Before addressing this question, I first introduce some general background to temporality in Guaraní, and the

⁴The CHANGE property is part of the assertive meaning of *-kue* and *-rã*, not a presupposition. If it were a presupposition, it should survive under negation: the example in (i) would presuppose that the possessive relation between the grandfather and the book is not true at the utterance time. However, (i) is ambiguous between (I) a reading in which the book is not the *grandfather’s* former book but somebody else’s former book, and (II) a reading according to which the book is not the grandfather’s *former* book but still his book. If the CHANGE property were presupposed, reading (II) would not be available.

- (i) Nda-ha’e-i che abuelo aranduka-**kue**.
 NEG-COP-NEG my grandfather book-KUE
 ‘It’s not my grandfather’s former book.’

framework of temporal interpretation that I assume in this paper.

Guaraní is a tense-less language, but makes a basic distinction between realis and irrealis contexts: in realis contexts (which subsume present and past contexts) the main predicate of an utterance is not marked, and the time at which the proposition denoted by the utterance is true is constrained by context or temporal adverbs; irrealis contexts (a superset of the future contexts) are marked, either morphologically on the main predicate or periphrastically.⁵ For example, in the examples in (8), the main predicate *hecha* ‘see’ is not tense-marked but the temporal adverb *kuehe* ‘yesterday’ constrains the time at which the propositions in (8) are true to lie within the time denoted by ‘yesterday’, i.e., in the past of the utterance time. In the English translations, both the temporal adverb and the past tense verb *saw* constrain the time at which the propositions are true.

- (8) a. Kuehe a-hecha peteĩ abogado-pe.
yesterday I-see one lawyer-PE
‘Yesterday I saw a lawyer.’
- b. Kuehe a-hecha peteĩ abogado-**kue**-pe. (=5a)
yesterday I-see one lawyer-KUE-PE
‘Yesterday I saw a former lawyer.’
- c. Kuehe a-hecha peteĩ abogado-**rã**-me. (=6a)
yesterday I-see one lawyer-RA-PE
‘Yesterday I saw a future lawyer.’

I assume that natural language expressions that are semantic predicates (including, e.g., verbs, nouns, adjectives, possessive markers, prepositions, etc.) denote properties of eventualities *ev* (following Davidson (1967) and Parsons (1990)), which are either states *s* or events *e* (cf. Bach 1986). These eventualities *ev* are mapped via Krifka’s (1992) temporal trace function τ to a situation time *SitT* (represented as $\tau(ev)$), which is the time interval at which the particular eventuality occurs. The task of temporal interpretation is to locate the situation time of an eventuality in time, i.e., to identify the temporal relation of the situation time $\tau(ev)$ to the utterance time, as well as to the situation times of other eventualities. For instance, regarding the examples in (8), the task of temporal interpretation is to identify the time at which the predicates *hecha* ‘see’ and *abogado* ‘lawyer’ are true for the individuals involved in the respective eventualities relative to the time of utterance, as well as relative to each other. Following standard semantic analyses of temporality (cf. Smith 1991, Kamp and Reyle 1993, Klein 1994), I assume that the temporal interpretation of natural language utterances, i.e., the relation between the situation time $\tau(ev)$ and the utterance time, has two parts: the *aspect* relation between the situation time $\tau(ev)$ and the reference time *RT*, and the *tense* relation between the reference time *RT* and a contextually given time t'_c , which in most contexts is the utterance time (cf. §3). According to this theory, the temporal interpretation of the predicate *hecha* ‘see’ in (8) consists of identifying

⁵If we assume the existence of a markedness hierarchy according to which nouns are only tense-marked in a language if verbs are, the fact that verbs are not tense-marked in Guaraní is further, albeit indirect, evidence against the tense analysis of the nominal temporal markers.

the relation between the situation time $\tau(e)$ (where e is the event denoted by *hecha* ‘see’) and the utterance time: the aspect relation between the situation time $\tau(e)$ and the reference time is the default inclusion relation (since no overt aspect markers are given), which states that $\tau(e)$ is located within the reference time (here represented as $\tau(e) \subseteq RT$ where \subseteq is the inclusion relation between times). Since Guaraní is a tense-less language, the temporal relation between the reference time RT and the utterance time UT is constrained by temporal adverbs or context: in (8), the temporal adverb *kuehe* ‘yesterday’ constrains the reference time RT to lie at the time denoted by the temporal adverb, and via temporal reasoning it is then established that the reference time lies the past of the utterance time. This temporal relation is represented here by $RT \prec UT$ where \prec represents the temporal precedence relation between times. Summarizing, the situation time $\tau(e)$ is located within the reference time (aspect relation), which is constrained by the time denoted by the temporal adverb *kuehe* ‘yesterday’, i.e., is located in the past of the utterance time (tense relation). Turning now to the temporal interpretation of the noun phrase *peteĩ abogado* ‘a lawyer’, we need our theory of temporality to specify the appropriate temporal relation between the situation time $\tau(s)$ of the state s denoted by the noun *abogado* ‘lawyer’, the reference time, and the utterance time.

1.2.1 The tense analysis of *-kue* and *-rã*

The semantic tense relation is specified above as the relation between the reference time and a contextually given time t'_c , typically the utterance time. It is clear that the nominal temporal markers do not express *this* tense relation because they do not affect the relation between the utterance time and the reference time. For instance, in (8a-c), the nominal temporal markers vary, but the tense relation between the reference and utterance time, is invariantly a precedence relation ($RT \prec UT$). So which times would a ‘nominal’ tense relate, if it does not relate the reference time and t'_c ? I assume here that nominal tense specifies the relation between the situation time $\tau(s)$ of the state denoted by the noun or possessive relation and a contextually given time t_c (which is possibly different from t'_c , cf. (8) where t_c is the reference time). This definition not only accords with the meaning assumptions made for nominal tenses in previous literature, but also fits with the definitions of tense and aspect given above as follows: if the aspect relation is the default inclusion relation ($\tau(e) \subseteq RT$ for events and $RT \subseteq \tau(s)$ for states), which is the case for noun phrases if *-kue* and *-rã* are tenses, the tense relation fully specifies the temporal interpretation of the eventuality denoted by a predicate (cf. Zagona 1995, Stowell 1996).

The meanings of (8a-c) under the analysis of *-kue* and *-rã* as nominal tenses are given in (9a-c). As discussed above, the tense relation (for the event denoted by the verb *hecha* ‘see’) is not overtly given but inferred from the fact that the reference time is constrained by the time t'' denoted by temporal adverb *kuehe* ‘yesterday’ (represented in (9) as $t''=RT$). Once the location of t'' is resolved, the semantic tense relation $RT \prec UT$ is added to the representation. The situation time $\tau(e)$ of the event e denoted by *hecha* ‘see’ is located within this reference time (represented in (9) as $e:\text{see}(\text{sp},x) \wedge \tau(e) \subseteq RT$ where ‘sp’ identifies the speaker). The situation time $\tau(s)$ of the state s denoted by the noun *abo-*

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gado ‘lawyer’ (represented as $s:\text{lawyer}(x)$) is located at a time t (represented by $t \subseteq \tau(s)$), and the nominal tenses specify the relation between t and t_c , which is the reference time in this example. Since the noun phrase *peteĩ abogado* ‘a lawyer’ in (8a) is not marked with a nominal temporal suffix, there is no temporal shift in the interpretation of the noun phrase. Consequently, the time t in (9a) is identified with the reference time ($t=RT=t_c$). The meaning of (8a) according to this representation is that the individual who was seen by the speaker yesterday was a lawyer at that time. Since the noun phrases in (8b) and (8c) are marked with *-kue* and *-rã*, respectively, the time t is located prior to the reference time in (9b) ($t \prec RT$), and subsequent to the reference time in (9c) ($RT \prec t$). Accordingly, the situation time of the noun is true for the individual at a time prior and subsequent to yesterday, respectively, which captures the TEMPORAL SHIFT property of the nominal temporal markers. The final constraint in (9b) and (9c), i.e., $\tau(s) \cap RT = \emptyset$, encodes the CHANGE property: it specifies that the intersection of the situation time $\tau(s)$ and the reference time is empty, i.e., the individual is not a lawyer at the reference time.

- (9) a. $t''=RT \wedge e:\text{see}(sp,x) \wedge \tau(e) \subseteq RT \wedge s:\text{lawyer}(x) \wedge t \subseteq \tau(s) \wedge t=RT$
 b. $t''=RT \wedge e:\text{see}(sp,x) \wedge \tau(e) \subseteq RT \wedge s:\text{lawyer}(x) \wedge t \subseteq \tau(s) \wedge t \prec RT \wedge \tau(s) \cap RT = \emptyset$
 c. $t''=RT \wedge e:\text{see}(sp,x) \wedge \tau(e) \subseteq RT \wedge s:\text{lawyer}(x) \wedge t \subseteq \tau(s) \wedge RT \prec t \wedge \tau(s) \cap RT = \emptyset$

The meanings of *-kue* and *-rã* under the tense analysis are given in (10): they are functions from predicates P (which realize states s) and a contextually given time t_c to a time t prior or subsequent to t_c at which the situation time of s is realized. Additionally, the nominal tenses specify that the situation time $\tau(s)$ does not overlap with t_c .

- (10) NPAST:= $\lambda P \lambda t_c \exists s \exists t [P(s) \wedge t \subseteq \tau(s) \wedge t \prec t_c \wedge \tau(s) \cap t_c = \emptyset]$
 NFUT:= $\lambda P \lambda t_c \exists s \exists t [P(s) \wedge t \subseteq \tau(s) \wedge t_c \prec t \wedge \tau(s) \cap t_c = \emptyset]$

The analysis is a tense analysis because the situation time denoted by the noun or possessive relation is located directly in time, i.e., prior or subsequent to a contextually given time.

1.2.2 The aspect analysis of *-kue* and *-rã*

The aspect analysis of the nominal temporal markers conceives of *-kue* and *-rã* as a terminative and a prospective aspect, respectively. (See Bohnemeyer (2002) for such aspects in the verbal system of Yucatec Maya.) A terminative aspect asserts that the post-state of the eventuality is true for the individual(s) at the reference time, and a prospective aspect asserts that the pre-state of the eventuality is true for the individual(s) at the reference time, where post- and pre-state are defined as the states that hold after the termination or before the initiation of the eventuality, respectively.⁶ Thus, nominal aspects, just like aspect

⁶The model-theoretic definitions of the post- and pre-state of an event are given in (i). Both are functions from predicates P (which realize an eventuality ev with situation time $\tau(ev)$) to post- and pre-states s , respectively, where $t_1 \supset t_2$ (t_1 abuts t_2) is defined as: $(t_1 \prec t_2) \wedge \neg \exists t_3 (t_1 \prec t_3 \prec t_2)$.

- (i) POST:= $\lambda P \exists ev \exists s [P(ev) \wedge \tau(ev) \supset \tau(s)]$ PRE:= $\lambda P \exists ev \exists s [P(ev) \wedge \tau(s) \supset \tau(ev)]$

markers that associate with verbs, specify the relation between the situation time and the reference time. The meaning representations of the examples in (8) under the aspect analysis of *-kue* and *-rã* are given in (11). Nothing changes for the representation of (8a), given in (11a): the situation time $\tau(s)$ of the state s denoted by *abogado* ‘lawyer’ is located at the time t , which is identified with the reference time. The crucial difference between (11a) and the representations in (11b) and (11c) is that it is not the situation time $\tau(s)$ which is located at the reference time, but $\tau(s')$, i.e., the situation time of the post- and pre-state, respectively, of the state s . Thus, the relation between the eventuality and the reference time that is expressed by these particular aspects is that the post- and pre-state of the eventuality, respectively, is located at the reference time.

- (11) a. $t''=RT \wedge e:\text{see}(sp,x) \wedge \tau(e) \subseteq RT \wedge s:\text{lawyer}(x) \wedge t \subseteq \tau(s) \wedge t=RT$
 b. $t''=RT \wedge e:\text{see}(sp,x) \wedge \tau(e) \subseteq RT \wedge s':\text{POST}(s:\text{lawyer})(x) \wedge t \subseteq \tau(s') \wedge t=RT$
 c. $t''=RT \wedge e:\text{see}(sp,x) \wedge \tau(e) \subseteq RT \wedge s':\text{PRE}(s:\text{lawyer})(x) \wedge t \subseteq \tau(s') \wedge t=RT$

Unlike the tense analysis, the TEMPORAL SHIFT and CHANGE meaning properties of *-kue* and *-rã* are not directly encoded in the aspect analysis but fall out from the meanings of the aspects. In (11b,c), the situation time $\tau(s')$ of the post- and pre-state of s is located at the reference time, which entails that the state s does not overlap with the reference time (CHANGE property). The TEMPORAL SHIFT property is also captured since, if the post-state of s is true at the reference time (for *-kue*), it is entailed that s is true at a time in the past of the reference time, and if the pre-state of s is true at the reference time (for *-rã*), it is implied (but not entailed) that s might be true at a time in the future of the reference time.

(12a) and (12b) give a model-theoretical analysis for the terminative and prospective aspect, respectively. These aspects are functions from predicates P which denote an eventuality ev , and a time t_c (the reference time) to the post- and pre-state of ev , which is located at the reference time.

- (12) a. $\text{TERM} := \lambda P \lambda t_c \exists s \exists ev [P(ev) \wedge s:\text{POST}(ev) \wedge t_c \subseteq \tau(s)]$
 b. $\text{PROSP} := \lambda P \lambda t_c \exists s \exists ev [P(ev) \wedge s:\text{PRE}(ev) \wedge t_c \subseteq \tau(s)]$

1.2.3 Discussion of Tonhauser (2005)

Tonhauser (2005) presents two arguments in favor of the aspect analysis. The first argument is based on the assumption that tenses serve to locate eventualities in time, i.e., before, at, or after a contextually salient time, but that they generally do not specify that the eventuality is not true anymore at this contextually salient time. For instance, in English, the past tense in (13a) asserts that the state of Arthur’s sickness was located prior to the utterance time (at the time denoted by *on Wednesday*). (13a) might imply that Arthur is not sick anymore at the utterance time but this implication can be cancelled by (13b), without contradiction. (Compare this to the inconsistency of (5) and (6).)

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

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The fact that a temporal marker entails a state change might suggest an aspect analysis, but is not decisive evidence for such an analysis since, in fact, there exist tenses that entail a state change (Jean-Pierre Koenig (p.c.)). For instance, the French passé simple *fut malade* in (14a) not only locates the situation time of the eventuality at a time in the past of the utterance time (namely at the time given by the temporal adverb *mercredi* ‘Wednesday’) but also requires that the state of being sick terminates at some time between Wednesday and the utterance time. (14b) is not a felicitous continuation of (14a) because (14b) explicitly denies the state change.⁷

- (14) a. Mercredi Marie fut malade.
Wednesday Marie was.PS sick
‘Marie was sick on Wednesday.’
b. #Elle n’-a pas encore récupéré.
she NEG-has NEG still get.well
‘She still hasn’t gotten well.’

The difference between tenses and aspects that is crucial here is not whether the morpheme entails a state change or not, but the time at which the morpheme locates the situation time of the eventuality (cf. Bohnemeyer 2002:50-51). A tense morpheme locates the situation time at the reference time, and hence Marie in (14a) is asserted to be sick on Wednesday. An aspect morpheme, on the other hand, does not necessarily locate the situation time at the reference time, but can express other relations between the two times. Therefore, the fact that in (8b) and (8c), the situation time of ‘lawyer’ is not true at the reference time provided by *kuehe* ‘yesterday’ but at a time prior or subsequent to the reference time, supports the aspect analysis. If *-kue* and *-rã* are nominal tenses, we expect to find some data where they locate the situation time of the eventuality at the reference time. Whether the nominal temporal markers have this capacity is examined in §4.

The second argument in Tonhauser (2005) against the tense analysis is based on the fact that *-kue* and *-rã* can co-occur on a noun phrase. For instance, in (15), the noun *pa’i* ‘priest’ is marked with both *-rã* and *-kue* (which is realized as *-ngue* in nasal contexts).

- (15) Kuehe a-hecha pa’i-**rã-ngue**-pe.
yesterday I-see priest-RA-KUE-PE
‘Yesterday, I saw the former future priest.’

If the nominal temporal markers are nominal tenses, the fact that *-kue* and *-rã* can be realized together on a noun phrase is puzzling because the two tense morphemes attempt to temporally locate the state denoted by *pa’i* ‘priest’ in opposite directions of a contextually given time. This conceptual challenge for the tense analysis is joined by an empirical one: co-occurring tense markers have not been reported for any language, while co-occurring aspect markers are well-attested in the languages of the world (cf. Comrie (1976:30ff.) and

⁷Thanks to Jean Philippe Marcotte for this example.

Tonhauser (2005) for details). However, the strongest argument provided by (15) against the tense analysis is that the tense analysis does not provide the correct interpretation for such examples. If we assume, following analyses of sequence-of-tense data, that the higher tense can provide the time relative to which the lower tense is interpreted, (15) receives the interpretation given in (16) (where *-kue* contributes the constraint $t' \prec RT$ and *-rã* the constraint $t' \prec t$). This resulting interpretation is problematic because it allows the individual to have been a priest at some time before the utterance time, a meaning that is not available for (15). (The constraints $\tau(s) \cap RT = \emptyset$ and $\tau(s) \cap t' = \emptyset$ were omitted for clarity since they do not affect the main point here.)

- (16) The meaning of (15) with *-kue* and *-rã* as nominal tenses:
 $RT = t'' \wedge e: \text{see}(sp, x) \wedge \tau(e) \subseteq RT \wedge s: \text{priest}(x) \wedge t \subseteq \tau(s) \wedge t' \prec t \wedge t' \prec RT$

The correct interpretation of (15) is given in (17), using the aspect analysis of *-kue* and *-rã*. In (17), the situation time of s'' is located at the reference time, where s'' is the post-state of s' , which is the pre-state of s , the state denoted by *pa'i* ‘priest’. Thus, the speaker saw the individual denoted by the noun phrase at the reference time, and at this time the individual was in the post-state of the pre-state of being a priest, which correctly precludes that he was ever a priest.

- (17) The meaning of (15) with *-kue* and *-rã* as nominal aspects:
 $RT = t'' \wedge e: \text{see}(sp, x) \wedge \tau(e) \subseteq RT \wedge s'': \text{POST}(s': \text{PRE}(s: \text{priest}))(x) \wedge RT \subseteq \tau(s'')$

1.3 Summary

Nominal temporal markers have a meaning property, the TEMPORAL SHIFT property, which is similar to the meaning of tense morphemes. Although it is possible to formalize the meaning of nominal temporal markers as nominal tenses, there exists evidence that the Guaraní nominal temporal markers are better analyzed as nominal aspects. In the next three sections, I present further empirical evidence against the tense analysis based on the morphological properties of the nominal temporal markers (§2), their sentence-internal meanings (§3) and their meaning in discourse (§4).

2 Co-occurrence restrictions and meaning changes

Grammatical aspect markers are well-known to exhibit co-occurrence restrictions with particular lexical aspect features of the predicates they combine with. For instance, the progressive aspect is generally incompatible with statives (*#I am knowing French*) and achievements (*#She is reaching the top*), and verbs of inception or cessation are incompatible with the perfective aspect (*Juanita acababa/*acabó de llegar* ‘Juanita just arrived’). Tenses, on the other hand, do not show such restrictions: any eventuality can be located prior to, at, or subsequent to a contextually given time. In this section, I examine the productivity of the nominal temporal suffixes of Guaraní with different semantic noun classes. I argue that the co-occurrence restrictions and meaning changes do not support the tense analysis.

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To examine the productivity with which the nominal temporal suffixes occur with nouns, I presented my consultants with a set of 65 nouns of seven different semantic classes. The consultants were asked to judge the acceptability of each combination of a noun with either *-kue* or *-rã*, and, if judged acceptable, were asked to create a sentence with the noun marked by the suffix. Sample nouns from each of the seven classes are given in (18).

- (18) a. Professions: *pa'i* ‘priest’, *mbo'ehara* ‘teacher’, *pelukero* ‘hair cutter’, ...
b. Relational nouns: *tuva* ‘father’, *jára* ‘owner’, *angiru* ‘friend’, ...
c. Manufactured objects: *apyka* ‘chair’, *óga* ‘house’, *aranduka* ‘book’, ...
d. Food: *kamby* ‘milk’, *so'o* ‘meat’, *kesu* ‘cheese’, *aramirõ* ‘cassava starch’, ...
e. Animals/humans: *ryguasu* ‘chicken’, *jagua* ‘dog’, *mitã* ‘child’, ...
f. Natural objects: *ñe'ã* ‘heart’, *ka'aguy* ‘forest’, *tata* ‘fire’, *tague* ‘hair’, ...
g. Spatio/temporal entities: *ka'aru* ‘siesta’, *sabado* ‘saturday’, *viaje* ‘trip’, ...

The suffix *-kue* is highly acceptable with nouns from the classes in (18a-c), i.e., professions, relational nouns and manufactured objects. An exception in the class of relational nouns are life-time properties (e.g., *abuelo* ‘grandfather’), which are not acceptable with *-kue*. Nouns in classes (18d-e), i.e., food items and animals/humans are generally not accepted with *-kue* either, while the acceptability of *-kue* crosscuts the class containing (other) natural objects (18f): for instance, *-kue* is not acceptable with *tata* ‘fire’ but fine with *ka'aguy* ‘forest’.

- (19) a. ??Kova peteĩ tata-**kue**.
this one fire-KUE
(intended: (pointing to ashes on the ground) ‘This is an ex-fire.’)
b. Ko kancha peteĩ ka'aguy-**kue**.
this football.ground one forest-KUE
‘This football ground was a forest/is a former forest.’

With the class of spatio/temporal nouns (18g) *-kue* is either unacceptable (e.g., with *hora* ‘hour’) or exhibits one of the following two temporal meanings. First, with some nouns *-kue*, e.g., *viaje* ‘trip’ in (20), it has the temporal meaning described in §1.

- (20) Mario o-guereko heta o-mombe'u va'erã pe viaje-**kue** Brasil-pe.
Mario he-have much he-tell VAERA that trip-KUE Brasil-PE
‘Mario will have much to tell about the ex-trip to Brasil.’ Ysyry radio, 6/3/05

Second, with a restricted set of temporal nouns, *-kue* receives a durative or habitual interpretation. This set includes *ka'aru* ‘evening’, *pyhare* ‘night’, *pyhare-ve* ‘morning’, *asaje* ‘siesta’ and weekdays. The durative interpretation is illustrated in (21b) with *asaje* ‘siesta’, and (22) presents the habitual interpretation with *sabado* ‘saturday’.

- (21) a. Asaje a-ñeno.
siesta-KUE I-lie.down
‘At the siesta, I lie down.’

- b. Asaje-**kue** a-ñeno.
 siesta-KUE I-lie.down
 ‘During the siesta, I lie down.’

- (22) Ko sabado a-mbaapo-ta kokue-pe pero sabado-**kue** katuete a-ha eskuela-pe.
 this saturday I-work-TA chacra-PE but saturday-KUE usually I-go school-PE
 ‘This saturday I will work in the chacra, but usually on saturdays I go to school.’

The suffix *-rã* exhibits much less lexical restrictions. It is generally accepted with professions, relational nouns (again with the exception of life-time properties) and manufactured objects but also with food items and natural objects, where it has a purposive meaning:

- (23) a. Ko kamby kesu-**rã**.
 this milk cheese-RA
 ‘This milk is for cheese.’
 b. A-heka-ta jepe’a tata-**rã**.
 I-search-TA firewood fire-RA
 ‘I will search firewood for fire.’

Most nouns denoting animals or humans are not acceptable with *-rã* but the example with *guei* ‘bull’ in (24a) illustrates that this is not a categorial but a semantic restriction (because the bull was conceived by my consultants as the only animal that served ‘for’ something). The suffix *-rã* is also generally acceptable with temporal nouns, as exemplified in (24b).

- (24) a. Ko toro guei-**rã**.
 this bull guei-RA
 ‘This bull is for guei.’ (A ‘guei’ is a bull that has been trained to work.)
 b. Ka’aru-**rã** o-ĩ-ta.
 evening-RA it-be-TA
 ‘In the evening (lit: for the evening), there will be some (chicken).’

Although the details of the co-occurrence restrictions and meaning changes that *-kue* and *-rã* exhibit with different semantic noun classes have yet to be fully analyzed and formally accounted for, the preliminary results of this study already indicate that the behavior of the nominal temporal markers at the lexical semantic level is not typical of tense morphemes. First, if *-kue* and *-rã* were nominal tenses, we would not expect them to exhibit systematic co-occurrence restrictions. Second, if *-kue* were a nominal past tense, we would expect it to receive a consistent past interpretation with the members of the class of temporal nouns.

3 The interpretation of *-kue* and *-rã* at the sentence level

In Guaraní, noun phrases without a temporal suffix can be interpreted at the utterance or reference time, just like noun phrases in English and German (cf. Enç 1981, Musan 1995, Tonhauser 2002). The underlined noun phrases in the examples in (25) illustrate this freedom of temporal interpretation: the state *s* denoted by the noun or the possessive relation

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of the noun phrase is true for the individual(s) at the reference time (RT) in (25a,b) and at the utterance time (UT) in (25c,d).

- (25) a. A-japó-ta ta'anga araity kakuaa porã-va. [UT < RT,s]
 I-do-TA figure wax big nice-REL
 'I will make a nice and big wax figure.'
- b. Ha o-ãguahe-ma katu h-enda-pe. [RT,s < UT]
 and he-arrive-already his-place-PE
 'And he had already arrived at his place.'
- c. A-topa che rembireko-pe Villarica-pe. [RT < UT,s]
 I-find my wife-PE Villarica-PE
 'I met my wife in Villarica.' (Next sentence: When I met her she was married to an Argentinian.)
- d. Ambue ary-pe che vesino oi-ko-ta Argentina-pe. [UT,s < RT]
 other year-PE my neighbor he-live-TA Argentina-PE
 'Next year, my neighbor will live in Argentina.'

The fact that noun phrases that are not marked with *-kue* or *-rã* can be interpreted in the past (25b) or future (25a) of the utterance time brings out a first difference between the meaning contribution of the nominal temporal markers and tenses. If a language realizes past or future tense morphemes on its finite verbs, the appropriate morpheme must occur when the verb is interpreted in the past or future of the utterance time (e.g., **Yesterday I swim*). The nominal temporal markers of Guaraní, on the other hand, need not occur on noun phrases that are interpreted at times other than the utterance time.

The next question now is how is the temporal interpretation of noun phrases that are marked with *-kue* or *-rã* is affected by the nominal temporal suffix. In §1, the tense relation was defined as the relation between the reference time and a contextually given time t'_c , which is the utterance time unless syntactic embedding provides for a secondary orientation point (cf. Smith 1991:149). For example, the subordinate clause *Mary was pregnant* in (26a) can be interpreted in the past of the utterance time (primary orientation point) in which case (26a) means that Mary was pregnant at the time yesterday when John made his statement, or the subordinate clause can be interpreted in the past of the time denoted by 'yesterday' (secondary orientation point), in which case Mary was pregnant before John made his statement yesterday (and not pregnant anymore yesterday). By contrast, the past tense of a non-embedded clause can only be interpreted in the past of the utterance time: (26b) does not have an interpretation where the time denoted by 'yesterday' serves as a secondary orientation time, in the past of which Mary was pregnant.

- (26) a. Yesterday John said that Mary was pregnant.
 b. Yesterday Mary was pregnant.

Nominal tense establishes the relation between the situation time and a contextually given time t_c (cf. §1.2.1). If *-kue* and *-rã* are nominal tenses, we expect the possible orientation

points for t_c to be similarly restricted as the t'_c of tense morphemes.

However, noun phrases that are marked with *-kue* (27a,b) or *-rã* (27c,d) exhibit the same interpretational freedom as unmarked noun phrases, and the temporal relation expressed by the nominal temporal markers does not include a fixed orientation time. For example, the noun phrases in (27c,d) are both marked with *-rã*, but the respective states *s* denoted by the possessive markers of the underlined noun phrases are true for the entities involved at the utterance time UT in (27c) and at the reference time RT in (27d). Thus, if *-rã* were a nominal future tense, it would locate *s* prior to the reference time in (27c), and prior to the utterance time in (27d). Hence, *-rã* is not interpreted relative to a fixed time t_c .

- (27) a. Che a-ha ramo nde re-ju che renda-gue-pe. [UT,s<RT]
 I I-go COND you you-come my place-KUE-PE
 ‘When I go, you come to my former place (i.e., the place that I am at now).’
- b. Pe pa’i-kue h-eñoi 1960-pe. [RT< s<UT]
 that priest-KUE he-born 1960-PE
 That ex-priest was born in 1960.’
- c. Kuehe a-jogua che syrykoi-rã [RT<UT,s]
 yesterday I-buy my motorbike-RA
 ‘Yesterday I bought my motorbike.’
- d. A-topa-ta nde termo-rã. [UT<RT,s]
 I-find-TA your thermo.flask-RA
 ‘I will find a thermo flask for you.’

The emerging generalization is that whether a noun phrase in Guaraní is interpreted at the reference or utterance time is independent of whether a nominal temporal suffix occurs on the noun phrase or not. Unlike tense morphemes, *-kue* and *-rã* do not locate the situation time of the eventuality relative to a fixed orientation point.^{8,9}

4 Tense and aspect in discourse

In §1, the semantic tense and aspect relations are both defined in terms of a relation between two times: the reference time and the utterance time (tense) and the reference time and the situation time (aspect). Despite this similarity, the two temporal relations show a strikingly different behavior once we study the temporal interpretation of discourses rather than of isolated examples only. The crucial difference is that the tense relation, but not

⁸Tonhauser (2002, 2005) extend the aspect analysis given in §1.2.2 which allows certain noun phrases (in English, German and Guaraní) to be interpreted at a time distinct from the reference time.

⁹An alternative analysis might assume that noun phrase arguments are syntactically embedded by the verb, and hence can be interpreted relative to the utterance or reference time, parallel to examples like (26a)). I can only briefly mention some problems with this analysis here: (i) such an analysis would not be supported by language-internal facts because subordinate clauses in Guaraní are always interpreted relative to the reference time of the higher clauses, (ii) there is no evidence that the freedom of interpretation exhibited by noun phrases with a temporal suffix is a consequence of the syntactic embedding of such a temporal suffix since noun phrases without a temporal suffix show the same interpretational freedom, and (iii) the examples in (27) are not ambiguous (in contrast to (26a)).

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the aspect relation, can be supplied by the discourse context. Regarding the distinction between grammatical markers of tense and aspect, this translates to saying that the meaning of a tense morpheme can be contextually determined, but not that of an aspect morpheme. The way in which the meaning of a tense morpheme can be contextually determined has been likened to the way in which a referent of a pronoun can be contextually determined (cf. Partee 1973, Kamp and Rohrer 1983, Partee 1984, Hinrichs 1986). For example, the proper name *Sam* in the first clause of (28a) introduces a referent to the discourse context, and the pronoun *he* in the second clause of (28a) is interpreted anaphorically, i.e., its referent is identified with the previously introduced entity. In a similar fashion as a pronoun can be interpreted anaphorically with respect to a referent provided in the discourse context, it is possible for the reference time of a tense relation to be anaphorically identified with a time introduced in prior discourse. In the first clause of (28b), the temporal adverb *last Friday* introduces a past time which constrains the reference time of the first clause. The past tense verb *got drunk* in the second clause of (28b) is interpreted anaphorically with respect to the past time introduced in the first clause: the reference time of the second clause is identified with the reference time of the first clause, and, as a result, (28b) means that Sam got drunk last Friday, the day Sheila had her party.

- (28) a. Sam is married. He has three children.
b. Sheila had a party last Friday and Sam got drunk. (Partee 1984:245)

In order to account for the meaning of tense morphemes in discourse, we can maintain that tense morphemes specify a relation between the reference and the utterance time, but we need to acknowledge that the reference time is not introduced by the tense morpheme: rather, the location of the reference time is constrained by the meaning of the tense morpheme and/or temporal adverbs, or is anaphorically determined by a time introduced in prior discourse, as for the second clause of (28b). The nominal tense relation is defined in §1.2.1 as the relation between the situation time of the noun or possessive and a contextually given time t_c . If the nominal temporal markers are nominal tenses, we expect that this temporal relation can be contextually determined, i.e., it should be possible for the location of the situation time to be anaphorically determined.

Naturally occurring data does not provide evidence for an anaphoric interpretation of the nominal temporal markers. Therefore, I presented my consultants with constructed examples that would provide evidence for an anaphoric interpretation of the nominal temporal markers. The first type of constructed discourse makes available a past or future reference time for the interpretation of a noun phrase marked with *-kue* or *-rã*, respectively, which occurs in a subsequent clause. For example, a past reference time is introduced in the example in (29b), and the example in (29c) contains the noun phrase *pe bisikleta-kue* ‘that bike-KUE’. If *-kue* can receive an anaphoric interpretation, the property ‘bike’ should be true for the entity denoted by the noun phrase at the past time introduced in (29b). However, as indicated, my consultants consistently reject such examples, and immediately suggest the version without the nominal temporal marker.

- (29) a. I want to give my little sister a bike for her birthday.
 b. Kuehe a-ha bisikleta-ñe-vende-hápe ha entero-ve bisikleta o-ĩ-va-gui
 yesterday I-go bike-PSV-sell-place and all bike it-be-REL-of
 ai-poravo peteĩ che hermana-pe-gua-rã.
 I-choose one my sister-PE-for-RA
 ‘Yesterday I went to a bike shop and of all the bikes they had there I chose one
 for my sister.’
 c. #Ko’ẽ-ramo a-ha-jevy-ta a-jogua hağua pe bisikleta-**kue**.
 tomorrow I-go-return-TA I-buy PURP that bike-KUE
 (intended: Tomorrow I’ll go back to buy that bike.)

Of course, it would not be fair to attribute the fact that (29c) is infelicitous in this discourse context to a non-anaphoric behavior of *-kue*. The problem with (29c) is that the nominal temporal markers have the CHANGE meaning property which requires that if the property *bisikleta* ‘bike’ is true at a time t prior to t_c (here, the utterance time), then the property is not true for the entity at the utterance time (and, of course, it does not make much sense to buy an ex-bike). Although this type of discourse does not provide direct evidence for a non-anaphoric behavior of the nominal temporal markers, the infelicity of such discourses identifies how limited the kinds of discourses are in which *-kue* and *-rã* could be used anaphorically: only in those in which the relation denoted by the noun or possessive is true for the individual(s) denoted by the noun phrase at the reference time but not at the utterance time. The anaphoric interpretation of tense morphemes is a prominent and systematic meaning feature of these morphemes in the temporal interpretation of natural language discourses. Hence, the fact that the number of contexts in which the nominal temporal markers could be used anaphorically is very limited (due to the CHANGE property and lexical semantic restrictions) does not support the tense analysis of these markers.

In the second set of examples to test the anaphoric properties of the nominal temporal markers, the noun phrase that is marked with *-kue* or *-rã* is realized in the same clause as a temporal adverb that constrains the reference time. This avoids the problems encountered in the first test with the CHANGE meaning property. Additionally, the examples are constructed such that the anaphoric interpretation of the nominal temporal markers is preferred on the basis of world knowledge. The anaphoricity of the nominal suffix *-kue* was tested with examples like those in (30): the temporal adverbs in both examples constrain the reference time to a time in the past of the utterance time. If *-kue* can be interpreted anaphorically, the properties ‘doctor’ (30a) and ‘president’ (30b) should be true for the individual at the reference time. Note that in both examples this anaphoric interpretation is favored by world knowledge: it is more plausible for a doctor than a former doctor to heal a friend (30a), and a president is more likely to speak on TV to the people than an ex-president (30b).

- (30) a. Ambue ary-pe peteĩ doytor-**kue** o-mo-nguera iñ-angiru-pe i-mba’asy.
 other year-PE one doctor-KUE he-CS-healthy his-friend-PE his-sickness
 ‘Last year, an ex-doctor healed his friend’s sickness.’

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- b. O-japo mokoĩ ary peteĩ tendota-**kue** o-ñe'ẽ heta pueblo-pe
it-do two year one president-KUE he-talk much people-PE
television-rupi.
television-through
'Two years ago an ex-president talked much to the people on television.'

Parallel examples test the anaphoric properties of *-rã*. In (31), the temporal adverb constrains the reference time to a time in the future of the utterance time, and, if *-rã* is interpreted anaphorically, the property 'lawyer' (31a) and 'constructor' (31b) should be true for the individuals denoted by the noun phrase at the reference time. Again, the anaphoric interpretation is supported by world knowledge: a lawyer is more likely to help his friend with law problems than an ex-lawyer (31a), and a constructor is more likely to build a house than somebody who is in training to be a constructor, i.e., a future constructor (31b).

- (31) a. Ambue ary-pe peteĩ abogado-**rã** oi-pytyvo-ta i-sosio-pe i-problema
other year-PE one lawyer-RA he-help-TA his-friend-PE his-problem
ley-ndive-gua-pe.
law-with-for-PE
'Next year a future lawyer will help his friend with his law problems.'
- b. Ambue ary-pe peteĩ óga-apo-ha-**rã** o-japo-ta h-óga.
other year-PE one house-do-NOM-RA he-do-TA his-house
'Next year, a future constructor will build his house.'

The examples were presented to three consultants, who I asked for translations, and, if necessary, clarification about whether the property denoted by the noun was true for the individual denoted by the noun phrase at the reference time or not. My consultants expressed a strong and consistent preference for an interpretation where the property denoted by the noun is not true for the individual anymore (*-kue*) or yet (*-rã*) at the reference time. This interpretation, which is a non-anaphoric interpretation of the nominal temporal markers, is achieved by locating the post- or pre-state, respectively, at the reference time, which is in accord with the aspect analysis of the temporal markers. For (31b) one consultant said that the individual is a constructor at the reference time, but the comments he volunteered regarding this interpretation are indicative of a non-anaphoric aspectual interpretation: he said that (31b) has this meaning because an individual who is learning to be a constructor at the utterance time must surely be a constructor within a year because it does not take that long to learn how to build a house (in this rural part of Paraguay). According to his comments, he arrived at this interpretation for (31b) by locating the pre-state of the state denoted by 'constructor' at the utterance time (cf. footnote 8), which allows the inference (for this consultant) that 'constructor' is true for the individual at the reference time.

Summarizing, past and future tense morphemes are anaphoric, and locate the eventuality of the expression they occur with at the reference time in the past or future of the utterance time. The meaning of the nominal temporal markers is very different from tenses: not only do the lexical restrictions and the CHANGE meaning property hinder a sys-

tematic anaphoric use, but the nominal temporal markers are preferably interpreted non-anaphorically even in contexts where world knowledge supports an anaphoric interpretation. Grammatical aspects are not anaphoric, and hence the results of this study support an analysis of the nominal temporal markers as nominal aspects, not nominal tenses.

5 Prototypical properties of tense and aspect

The four criteria that I presented in §§1-4 for the distinction between tense and aspect are summarized in Table 1 (where ‘noun’, ‘verb’, ‘adjective’, etc. are examples of category \mathcal{C}). The criterion ‘located eventuality’ was employed in §1 to formalize a tense and an aspectual analysis of the nominal temporal markers of Guaraní. The crucial difference between tense and aspect that is reflected by the two analyses is whether the temporal marker directly locates the eventuality denoted by the expression that the marker occurs with in time (tense analysis) or whether a particular perspective on the eventuality is located in time (aspect analysis). Although both analyses adequately capture the TEMPORAL SHIFT and the CHANGE meaning properties of the nominal temporal markers, the subsequent sections identify that the nominal temporal markers do not exhibit the behavior we expect of tense morphemes according to the criteria given in Table 1: *-kue* and *-rã* do not locate the eventuality in time, but its post- and pre-state, respectively (§1.2.3, §4), the markers are not productive within the whole class of nouns but show lexical semantic co-occurrence restrictions (§2), the markers do not locate the eventuality relative to a fixed orientation time (§3), and the nominal temporal markers do not show anaphoric properties (§4).

CRITERIA	a tense marker...	an aspect marker...
located eventuality	temporally locates the situation time of the eventuality denoted by the expression	temporally locates a particular perspective on the the eventuality denoted by the expression
morphological productivity	applies to all members of \mathcal{C}	can show lexical semantic restrictions with some members of \mathcal{C}
orientation time	locates the eventuality denoted by the expression relative to a fixed orientation time	locates the eventuality denoted by the expression relative to the reference time (which is not a fixed orientation time)
meaning in discourse	is anaphoric	is not anaphoric

Table 1: Prototypical properties of tense and aspect

6 Conclusions

Languages with nominal temporal markers provides exciting new avenues for research in a number of areas of linguistics: for example, the temporal interpretation of noun phrases (which has been studied mainly for English and German, cf. Enç 1981, Musan 1995, Tonhauser 2002) and theories of lexical categories (which maintain that temporality is a

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defining feature of verbs). However, despite the increasing amount of attention these markers have received in the typological, syntactic and semantic literature over the past ten years, the question which temporal category the markers belong to was not addressed at all. Therefore, my goal in this paper was to spell out formal analyses of the nominal temporal markers as nominal tenses and nominal aspects, as well as the assumptions behind each of these analyses, and make explicit the criteria by which tense and aspect are distinguished in the nominal domain. I applied the criteria to the nominal temporal markers of Guaraní, and found overwhelming support for the aspect analysis of the markers.

As mentioned in the introduction, the nominal temporal markers of almost all languages have been called nominal *tenses* in prior literature (a notable exception is Maslova (2003)). The correct classification of the nominal temporal markers is particularly important for areas of research (like those mentioned above) that build on the results of the research on languages with nominal temporal markers. Therefore, my hope is that the finding that the nominal temporal markers of at least one of these languages, namely Guaraní, are not nominal tenses, will lead to an evaluation of the nominal temporal markers of other languages, too, by the criteria developed here.

The temporal system of languages like Guaraní provide particularly clear insights to the differences between the temporal interpretation of, e.g., nouns and verbs, and noun phrases and verb phrases. For example, why are verbs always interpreted at the reference time, but noun phrases can be interpreted at other times, too? Eventually, a theory of temporality, in combination with a theory of lexical and syntactic categories, should elucidate these differences.

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