Towards an Understanding of the Meaning of Nominal Tense[*]

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Abstract

Paraguayan Guaraní has nominal inflectional suffixes with temporal meanings. I challenge the claim that they are nominal *tenses* (cf. Nordlinger and Sadler 2004), and analyze them as nominal *aspects*. I present evidence that points to crosslinguistic variation in the way in which noun phrases are temporally interpreted, and address the implications of the existence of languages with nominal temporal markers for theories of temporality and crosslinguistic temporal interpretation.

Paraguayan Guaraní (Tupi-Guaraní language family) has two nominal suffixes *-kue* and *-rã*, which contribute to the temporal interpretation of the noun or nominal projection to which they attach.[1] For example, in (1a), where the noun *pa'i* 'priest' is not marked with *-kue* or *-rã*, the referent of the noun is asserted to have been a priest at the time at which the speaker saw the individual.[2] (Guaraní does not have a definite determiner.) The interpretation of (1a) contrasts with that of (1b) and (1c), where the noun *pa'i* 'priest' is marked with *-kue* and *-rã*, respectively: in (1b), the individual was a priest at a time before the speaker saw the individual, but not anymore at the time of the seeing event, whereas (1c) conveys that the individual is not a priest at the time at which the speaker saw the individual, but will be in the future. As the examples in (1) illustrate, Guaraní does not have a grammaticalized past tense for verbs, but the unmarked form of the verb (i.e., *hecha* 'see' in (1)) is used in present and past contexts alike.

(1) a. Kuehe   a-hecha pa'i-pe.
         yesterday I-see   priest-PE
         'Yesterday I saw the priest.'

     b. Kuehe   a-hecha pa'i-**kue**-pe.
         yesterday I-see   priest-KUE-PE
         'Yesterday I saw the former priest.'

[1]The language has a third nominal temporal marker *-re*, which is often suffixed to individual-level nouns to indicate that the referent is dead. A discussion of *-re* is left for future research.

[2]I use the following glosses in this paper: -KUE=nominal terminative aspect, in nasal contexts *-ngue*; KURI=tense/aspect marker; -PE=accusative/oblique/locative argument marker, in nasal contexts *-me*; -QU= question marker; -RA=nominal prospective aspect; -TA=irrealis mood or future tense.

    c.   Kuehe   a-hecha pa'i-**rã**-me.
              yesterday I-see   priest-RA-PE
              'Yesterday I saw the seminarist/future priest.'

In the examples in (1), the temporal interpretation of the noun *pa'i* 'priest' is determined relative to the time at which the verb *hecha* 'see' is interpreted, but this is not necessarily the case. The temporal interpretation of a noun phrase argument can be independent of the temporal interpretation of the main verb. For instance, in (2), the noun phrase *che ru* 'my father' is interpreted at a time after the time at which the verb complex *kove ypy* 'be born' is interpreted, because the individual denoted by the noun phrase was not the speaker's father yet at the time of his birth in 1950.

(2)   Che ru   oi-kove ypy   1950-pe.
          my father 3-live   origin 1950-PE.
          'My father was born in 1950.'

In principle then, the temporal interpretation of noun phrases in Guaraní is independent of the time at which the main verb is interpreted. (Similar observations were made for the temporal interpretation of noun phrases in English, see, e.g., Enç 1981, Musan 1995, Tonhauser 2002.) Paraguayan Guaraní is not the only language with nominal temporal markers: Nordlinger and Sadler (2004, §2) identify about 20 such languages from all over the world. The existence of such languages has a number of important implications: 1. Although it is probably true that there are more languages with verbal than with nominal tense/aspect morphology,[3] co-occurrence with such morphology can no longer be considered a crosslinguistically valid criterion for verb-hood (cf., e.g., Crystal 1997, Givón 2001). 2. Modern linguistic theories of temporality in natural languages (e.g., Reichenbach 1947, Smith 1991, Kamp and Reyle 1993, Klein 1994) are almost exclusively concerned with the temporal interpretation of verbs and verbal projections. This is probably due to the fact that Indo-European languages, which provide the empirical basis for such theories, only have tense/aspect inflectional morphology for verbs. Since the denotation of other contentful expressions in the clause (like nouns, adjectives, possessives) also depends on the time of evaluation (cf. Enç 1981, Musan 1995, Tonhauser 2002 for English), the temporal interpretation of propositions is not complete (in any language) if it does not establish the temporal relationship of *all* properties and relations expressed within the clause with respect to, e.g., the utterance or reference time of the proposition. Thus, the existence of languages with nominal temporal markers points to an empirical inadequacy and lack of generality of current theories of temporality. 3. From the perspective of crosslinguistic semantics, the temporal interpretation of noun phrases raises the question of the nature of the variation in this domain of language. Is there variation in the way in which noun phrases are temporally interpreted, and does this variation correlate with whether the language has temporal inflections for nominal projections (e.g., Guaraní) or not (e.g., English)? How do temporal adverbs like *former* and *future* differ from inflectional markers, and how is this difference captured in the formal

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[3]The notion 'nominal tense/aspect morphology' is used here for markers whose semantic contribution affects the interpretation of the noun phrase they are attached to (cf. Nordlinger and Sadler 2004, §2), but not for markers who affect the interpretation of the verb but just happen to be attached to a noun phrase argument (cf. Nordlinger and Sadler 2004, §3).

analysis? Many of these concerns and questions will not be addressed in this paper, but serve as pointers for future research.

The main contributions of this paper are the following. In section 1, I argue that the nominal temporal markers of Guaraní are nominal aspects, comparable to verbal aspects, rather than nominal *tenses*, as Nordlinger & Sadler claim. I present an implementation of the temporal interpretation of noun phrases that is compatible with theories of temporality like Reichenbach 1947, Smith 1991, Kamp and Reyle 1993, Klein 1994. In section 2, I present evidence for the existence of crosslinguistic variation in the domain of the temporal interpretation of noun phrases. Section 3 briefly discusses three areas for future research, and the paper is concluded in section 4.

1   Nominal temporal markers in Guaraní

My goal is this section is to present a formal analysis of Guaraní *-kue* and *-rã* as nominal aspects.[4] It is instructive, however, to first consider the criteria that led Nordlinger and Sadler (2004) to propose that the Guaraní markers are nominal tenses, not only because the rejection of the tense analysis indirectly supports the aspectual analysis, but also because it allows us to re-evaluate Nordlinger & Sadler's claim (p.801) that the nominal temporal markers of *all* the languages discussed in §2 of their paper have tense meanings.

1.1   Guaraní *-kue* and *-rã* are not nominal tenses

A temporal marker (and, hence, a language) is included in Nordlinger & Sadler's study, if it (i) is a morphological category of the nominal word class, (ii) is not restricted to nominals functioning as predicates of verbless clauses but is encoded on arguments and/or adjunct NP/DPs in clauses headed by verbs, (iii) is productive across the whole word class and not restricted to a small subset of forms, and (iv) if it marks "a distinction in one or more of the categories of tense, aspect, and mood, where these categories are standardly defined as they would be for verbs (e.g., Crystal 1997)" (cf., Nordlinger and Sadler 2004, 778). It is criterion (iv) that I take a closer look at since it is the basis for the claim that the Guaraní markers are nominal tenses. According to Crystal (1997, 384f), tense "marks the time at which the action denoted by the verb took place", from which I take it that Nordlinger & Sadler assume that Guaraní *-kue* and *-rã* mark the time at which the property denoted by the noun (e.g., *pa'i* 'priest' in (1)) is true for the denotation of the noun phrase. This seems intuitively correct because, for example, the time at which the property denoted by *pa'i* 'priest' is true is different in (1b,c) than in (1a), thanks to the semantic contribution of the nominal temporal markers *-kue* and *-rã*. However, members of the category 'aspect' are also known to be able to affect the temporal location of an event or state (cf., e.g., Smith 1991, Bohnemeyer and Swift 2004). We cannot rely on intuitions to determine whether a particular form is 'tense' or 'aspect', but need to examine the meaning contribution of the form to identify its category.[5] In order to establish

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[4]Gregores and Suárez (1967, 127f), a descriptive grammar of Paraguayan Guaraní, identifies *-kue* and *-rã* as nominal inflectional elements with a temporal meaning, namely 'former, past' and 'future', respectively. Velazquez (1996, 8) calls *-kue* 'nominal past' and *-rã* 'nominal future'.

[5]Of course, it is logically possible that nominal temporal markers are neither like verbal tenses nor aspects, and that we need to invent new categories for nominal temporal markers. My working hypothesis

whether we can maintain the claim that these markers are tenses, I assume (following Crystal, and hence Nordlinger & Sadler) that tense identifies the time at which a state or event is true. In other words, tense is a relation between two times, one of which is the situation time (TSit) of the eventuality,[6] i.e., the time at which the eventuality is true. I distinguish 'deictic' tense, where the second time is the time of utterance, from 'relative' tense, where the second time is any contextually given time (cf., Comrie 1985).[7]

I discuss the question of whether Guaraní *-kue* is a deictic past tense based on the example (1b), which is repeated below for convenience. If *-kue* were a deictic past tense, it would locate the TSit of the noun *pa'i* 'priest', i.e., the time at which the property 'priest' is true for the individual denoted by the noun phrase, at a contextually salient time t prior to the utterance time. In (1b), this time t is the time denoted by *kuehe* 'yesterday'. Thus, if *-kue* were a deictic past tense, we would expect (1b) to mean that the speaker saw an individual yesterday who at the time of the seeing-event was a priest. This is not what (1b) means.

(1b)   Kuehe   a-hecha pa'i-**kue**-pe.
         yesterday I-see   priest-KUE-PE
         'Yesterday I saw the former priest.'

Rather, the interpretation of (1b) requires that the property 'priest' is not true at t (the time denoted by *yesterday* and the time at which the speaker saw the individual), but was true at an earlier (unspecified) time. This meaning is schematically represented in (3). Following Tonhauser (2000), the state discourse referent s in (3) represents the TSit of the noun *pa'i* 'priest', and **now** refers to the time of utterance.

(3)   The meaning of (1b): (omitting the representation of definiteness)
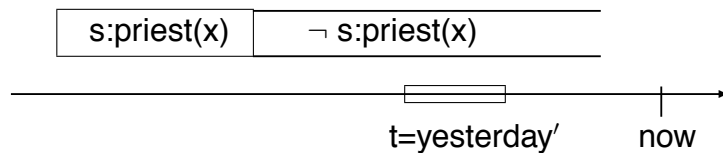
According to (3), the temporal interpretation of the noun *pa'i* 'priest' in (1b) involves a state change from being a priest (at an unspecified time in the past) to not being a priest anymore at t. This state change is entailed by (1b): (4) is infelicitous because the state change is explicitly denied by the continuation 'he was a priest yesterday'.

(4)   #Kuehe   a-hecha pa'i-**kue**-pe, kuehe   ha'e pa'i kuri.
         yesterday I-see   priest-KUE-PE yesterday he   priest KURI
         (Yesterday I saw the former priest, he was a priest yesterday.)

Could an analysis of *-kue* as a relative past tense result in the desired interpretation of

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in this paper is that this is not the case.

[6] Throughout this paper I use 'eventuality' as a cover term for states and events.

[7] Using this definition, I try to follow as closely as possible Nordlinger & Sadler's assumptions, with the goal of identifying the basis of their claim that the Guaraní nominal temporal markers are nominal tenses. Of course, according to theories of temporality like Reichenbach 1947, Kamp and Reyle 1993, Klein 1994, where tense expresses the relationship between the reference and the utterance time, the Guaraní markers are not tenses to begin with. Nevertheless, it is instructive to work out the consequences of Nordlinger & Sadler's assumptions, to better understand the meanings of these markers.

(1b)? Such an analysis would locate the TSit of *pa'i* 'priest' at a time t' that is prior to a contextually salient time t. In (1b), where the time t denoted by *kuehe* 'yesterday' is the most salient time (other than the utterance time), the resulting interpretation is that the state s:priest(x) is located at a time t' prior to t, as given in (5).

(5)   If *-kue* were a relative past tense, the meaning of (1b) would be like this:

> | s:priest(x) |
> | --- |

$$\text{———————|————————————————|———|————→}$$

$$t't=\text{yesterday}'\text{now}$$
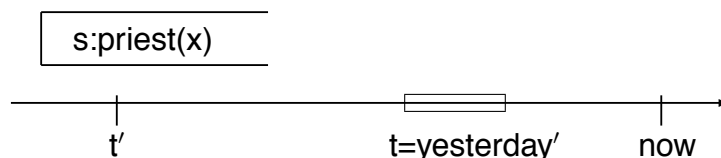
Although the state s:priest(x) is now correctly located in the past of *yesterday*, (5) again is not the desired interpretation. The problem is that the state change is not entailed, i.e., nothing requires that s:priest(x) is not true at t anymore. In order to maintain an analysis of *-kue* as a past tense, one has to find a way to incorporate the assertion of a state change into the compositional analysis of noun phrases marked with *-kue*. There are three logical possibilities: the state change could arise as (i) part of the meaning of the noun (phrase), (ii) part of the meaning of (nominal) past tenses, or (iii) part of the rule that combines the meaning of the noun and *-kue*. Option (i) is implausible because nouns that are not marked with *-kue* (like *pa'i* 'priest' in (1a)) do not entail a state change. Option (ii) also does not strike me as well-motivated because it would require the meaning of a *nominal* past tense to differ from that of a *verbal* past tense. No state change is entailed when a state is located in the past via a *verbal* past tense: for instance, sentence (a) in (6), where the state s:sick(x) is asserted to be true in the past, might implicate a state change (e.g., 'Bill is not sick today') but does not entail it because (a) can be felicitously continued by (b). (Compare (6) to the infelicitous discourse in (4).)

(6)   (a) Yesterday Bill was sick. (b) ...and he still is today.

Thus, in order to maintain an analysis of *-kue* as past tense under option (ii), we would have to postulate that *nominal* but not *verbal* past tense entails a state change. While such an analysis is possible in principle, it is undesirable to assume that the meaning contribution of past tense varies with the lexical category of the host expression. Finally, an implementation of option (iii) would consist of stating that the rule that combines the meaning of a noun with the meaning of *-kue* not only locates the denotation of the noun in the past of a contextually salient time, but also adds the entailment of a state change. I reject option (iii) because it places a large burden on the semantic composition rule, and I conclude that *-kue* is not a past tense.

Turning to the other nominal temporal marker, i.e., *-rã*, consider a context in which a man knows that he will see his future wife in January of next year, and will marry her the following November. He can felicitously utter (7), where *che rembireko* 'my wife' is marked with *-rã*.

(7)   Ambue ary-pe   a-hecha-ta che rembireko-**rã**-me.
       other   year-PE I-see-TA   my wife-RA-PE
       'Next year I will see my future wife.'

An analysis of *-rã* as a nominal future tense cannot provide the correct interpretation of (7) in the given context. As a deictic tense, *-rã* would locate the state s:wife(sp,x) (where 'sp' denotes the speaker) at the time t denoted by 'next year' in the future of the utterance time. Thus, (7) would receive an interpretation in which the woman is the speaker's wife at t 'next year', which is not true in the given context since they are not married when they meet in January. As a relative tense, *-rã* locates s:wife(sp,x) at a time t′ in the future of the time t denoted by 'next year'. This is undesirable again since she will become his wife in the November that is included in t. The basic problem with the tense analysis of *-rã* is that it locates s:wife(sp,x) *at a particular time* (in the future of the utterance time or a contextually salient time). However, the meaning of (7) does not contain information about the time when the woman will become the speaker's wife but merely asserts that she currently is his future wife. I conclude that *-rã* is not a future tense.

1.2 The temporal interpretation of noun phrases

Reichenbach (1947) assumes that three times are necessary to represent the temporal interpretation of a proposition: the time of utterance (TU), the situation time of the state or event of the proposition (TSit), and the reference time (RT), which is the time the proposition is *about*. Tense expresses the temporal relationship between TU and RT, and aspect expresses the temporal relationship between RT and TSit, where the temporal relationship can be one of precedence, overlap or succession. Since other theories of temporality (cf., Smith 1991, Kamp and Reyle 1993, Klein 1994) share these assumptions, the analysis of the temporal interpretation of noun phrases I develop here is compatible with them, too. How can these theories, which were developed with the temporal interpretation of verbs and verbal projections in mind only, be modified to incorporate the temporal interpretation of non-verbal expressions? And what are the predictions that such theories make regarding the temporal interpretation of non-verbal expressions? In this and the next section, I pursue one reinterpretation of current theories of temporality and present an aspectual analysis of the nominal temporal markers of Guaraní.

What does it mean for aspect to express the relationship between RT and TSit? Consider the example in (8). Following Klein (1994), I assume that tense and temporal adverbs constrain the times from which a RT can be selected in a particular discourse context; in (8), RT is therefore constrained to lie in the past of TU (because of the past tense on the verb *win*) and within the denotation of *last year*.

(8)   Last year, a student won.

Since the verb *win* is realized in perfective aspect (unmarked in English), its TSit is realized within the RT (cf., e.g., Kamp and Reyle 1993, Klein 1994). Theories of temporality (more or less explicitly) assume that a proposition only contains one TSit, namely that of the main verb, and hence only one aspect relation is established. However, since the verb is not the only contentful expressions in a clause that needs to be temporally interpreted, I submit that a proposition can consist of more than one TSit, and hence more than one aspect relation. In particular, a proposition contains as many TSits as there are contentful expressions (e.g., verbs, nouns, adjectives, possessives, etc.), and each of these TSits is temporally interpreted by relating it individually to the RT. In contrast to aspect, the tense

relationship, i.e., the relationship between TU and RT, is unique for a given proposition since TU and RT are unique times for any given proposition. In (9), the representation of the proposition of (8), RT and TU are free variables: they are constrained by lexical material but need to be contextually resolved. (I assume, but do not represent, that the discourse referent x is existentially bound.) As indicated, tense is the unique relationship between RT and TU (here $RT \prec TU$, where '$\prec$' is a linear precedence relationship between times). The aspect relationship is instantiated twice: the TSit of the noun *student* (represented by $\tau(s)$, where s is a state discourse referent) includes the RT ($RT \subseteq \tau(s)$) because (unmarked) nouns receive an imperfective interpretation. The TSit of the event *win* (represented by $\tau(e)$) is located at the RT. Thus, at the time at which the individual x won, x was a student. ($\subseteq$ is an inclusion relation for times.)

(9) $RT \prec TU \land last\_year'(t) \land RT \subseteq t \land e{:}win(x) \land \tau(e) \subseteq RT \land s{:}student(x) \land RT \subseteq \tau(s)$
     (tense)   (aspect)   (aspect)

This reinterpretation of current theories of temporality is minimal because it still only operates with TU, RT and TSit, and because it assumes that the same constraints govern the temporal interpretation of all contentful expressions.

1.3   Guaraní *-kue* and *-rã* are nominal aspects

I propose that *-kue* is a terminative aspect and *-rã* is a prospective aspect (cf. Bohnemeyer (1998) for such aspects in Yucatec Maya). A terminative aspect asserts that the post-state of the eventuality is true at RT, and a prospective aspect asserts that the pre-state of the eventuality is true at RT, where post- and pre-state are defined as the states that hold (immediately) after the termination or before the initiation of the eventuality, respectively. I discuss the interpretations of (1a,b,c), given in (10a,b,c), before presenting a model-theoretic analysis of the two aspects. In (10a,b,c) (where I ignore the representation of definiteness for ease of exposition) I assume that yd', the meaning of the temporal adverb *kuehe* 'yesterday', constrains the RT, which is represented in (10a,b,c) by $RT \subseteq yd'(t)$. (Once yd' is interpreted, the constraint '$RT \prec TU$' is added.) The event e denoted by *hecha* 'see' receives an imperfective interpretation, and hence its TSit (i.e., $\tau(e)$) is contained within the RT (represented by $\tau(e) \subseteq RT$). In (1a), the noun phrase *pa'i* 'priest' is not marked with *-kue* or *-rã* which results in an imperfective interpretation of the noun: thus, in (10a), the RT is contained by the TSit of s:priest(x) (represented by $RT \subseteq \tau(s)$). Consequently, at RT, e is true and the individual is a priest. POST and PRE are functions mapping an eventuality ev (a state s in (10b,c)) noted by P to its post- or pre-state s′, respectively. The interpretation of (1b), where the noun *pa'i* 'priest' is marked with the terminative aspect *-kue*, is given in (10b). Here, the condition $RT \subseteq \tau(s')$ means that the state s′ (i.e., the post-state of s:priest(x)) is located at the RT. Thus, yesterday, when the speaker saw the individual, the individual was in the post-state of being a priest, which requires that the individual was a priest at an unspecified time in the past but is not anymore at the time of the seeing-event. The state change is entailed by the aspectual analysis of *-kue* because of the localization of the post-state of the eventuality at the RT. In (10c), the interpretation of (1c) where the noun is marked with the prospective aspect *-rã*, the TSit of s′ (the pre-state of s:priest(x)) is located at the RT. Crucially, this implicates

that s can be true at a time in the future, but it does not require the localization of s at a time in the future (cf., the discussion of example (7)).

(10) a. RT⊆yd′(t) ∧ e:see(sp,x) ∧ τ(e)⊆RT ∧ s:priest(x) ∧ RT⊆ τ(s)
      b. RT⊆yd′(t) ∧ e:see(sp,x) ∧ τ(e)⊆RT ∧ s′:POST(s:priest)(x) ∧ RT⊆ τ(s′)
      c. RT⊆yd′(t) ∧ e:see(sp,x) ∧ τ(e)⊆RT ∧ s′:PRE(s:priest)(x) ∧ RT⊆ τ(s′)

(11a) and (11b) give a model-theoretical analysis for the terminative and prospective aspect, respectively. Both aspects basically are functions from an eventuality (i.e., state or event) predicate P to a time range t_{RT} from which an actual RT is selected from context. Thus, as discussed for the examples above, a terminative (TERM) aspect specifies that the TSit of the post-state of the eventuality includes the RT, while a prospective aspect (PROSP) specifies that the TSit of the pre-state of the eventuality includes the RT.

(11) a. TERM:= $\lambda P\lambda t_{RT}\exists s\exists$ev[P(ev) ∧ s:POST(ev) ∧ $t_{RT} \subseteq \tau$(s)]
      b. PROSP:= $\lambda P\lambda t_{RT}\exists s\exists$ev[P(ev) ∧ s:PRE(ev) ∧ $t_{RT} \subseteq \tau$(s)]

Further support for the aspectual analysis of *-kue* and *-rã* comes from the fact that a noun phrase can be marked with more than one of these suffixes (in either order). In (12), for instance, the noun *pa'i* 'priest' is marked with both *-rã* and *-kue* (*-ngue* in nasal contexts).[8]

(12) Kuehe   a-hecha pa'i-**rã-ngue**-pe.
      Yesterday I-see   priest-RA-KUE-PE
      'I saw the former future priest.'

The interpretation of (12) under the aspectual analysis of *-kue* and *-rã* is given in (13): it states that at the RT, the speaker saw the individual denoted by the noun phrase, and the individual was in the post-state of the pre-state of being a priest. The aspectual analysis correctly precludes the realization of the state s:priest(x) itself, unlike the tense analysis (which I must leave up to the reader to check for reasons of space).

(13) RT⊆yd′(t)∧e:see(sp,x) ∧ τ(e)⊆RT ∧ s″:POST(s′:PRE(s:priest))(x) ∧ RT⊆τ(s″)

Besides the empirical advantage, examples like (12) also demonstrate a conceptual advantage of the aspectual over the tense analysis. The function of tense is to temporally relate two times, at least one of which is contextually determined in all existing characterizations of tense. This means that in examples like (12), the two nominal temporal markers (if they were tenses) would express two different temporal relations for the two times. Thus, conceptually, the co-occurrence of two tenses on a single expression is not compatible with the function that is usually attributed to tense. This conceptual problem is not encountered by the aspectual analysis because aspect is assumed to identify the perspective that is taken upon an eventuality, and one can imagine using two aspectual markers to express a (temporally) more complex perspective, as in (12). Empirical support is provided by the existence of languages like English, Georgian and Bulgarian which realize multiple aspects on verbs (cf., Comrie 1976, 30ff.).

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[8]Despite the high frequency of examples with *pa'i* 'priest' in this paper, *-kue* and *-rã* are productive with a wide range of nouns, which will be properly reflected and discussed in future work.

The final example I discuss here takes up the point I made above regarding example (2), repeated below for convenience. In (2), the noun phrase *che ru* 'my father' is not interpreted relative to the reference time (constrained by 'in 1950') but at the utterance time. For English, Enç (1981), Musan (1995) and Tonhauser (2002) point out that noun phrases are not necessarily interpreted at the reference time but, unlike verbs, noun phrases are free to be interpreted at other contextually salient times (like the utterance time). The example (2) illustrates that this seems to be true in principal for Guaraní, too.

(2)   Che ru   oi-kove ypy   1950-pe.
        my father 3-live   origin 1950-PE.
        'My father was born in 1950.'

An interesting question then is to determine *which noun phrases* are interpreted at times other than the reference time, and *which times* are relevant for the temporal interpretation of noun phrases (cf., Musan 1995, Tonhauser 2002). I believe that the key to answering these questions is the *function* of noun phrases: in contrast to the main verb of a clause, which serves to predicate a property or relation of the event participants, the function of a noun phrase is to *identify* an event participant. As such, the contentful expressions within a noun phrase (e.g., noun, adjective, possessive) need to express properties or relations that allow the identification of the event participant (together with the meaning contribution of the determiner or quantifier, of course). This goal is achieved if the denotations of these expressions are *salient in the discourse context at a particular time* for the event participant. Of course, it is not necessary that this time be the reference time. In (2), for example, the relational noun *ru* 'father' (with the speaker as the possessor) is highly salient at the time of utterance and thereby ideally serves to identify this event participant. The reference time (as the time which the proposition is *about*) is not relevant to *identify* the event participant in (2), but is relevant only to the verb which predicates a property of the event participant at this time. This is not to say that the reference time only plays a minor role in the temporal interpretation of noun phrases: in fact, in most instances it is the reference time that is the salient time for the denotation of a noun phrase, and hence for the denotations of the contentful expressions within a noun phrase (cf., the examples in (1)). Thus, I argue in Tonhauser (2002) that noun phrases are by default interpreted at the reference time, unless there is contextual evidence to the contrary.[9]

1.4   Conclusions

I argued that Guaraní has nominal aspects, comparable to verbal aspects. The formalization of the meaning of nominal aspects can be integrated to current theories of temporality, like Reichenbach 1947, Kamp and Reyle 1993, Klein 1994, if we assume that the aspect is not unique for a proposition but is established between RT and the TSit of each eventuality in a proposition.

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[9]For reasons of space I cannot do justice here to previous proposals. However, in Tonhauser (2002) I point out that Enç (1981) does not restrict the temporal interpretation of noun phrases at all, and I give counterexamples to all of the restrictions proposed by Musan (1995).

2 Aspects of semantic variation in the temporal interpretation of noun phrases

One of the central concerns of crosslinguistic semantic research is to identify the nature of semantic variation and the locus of this variation in the system of grammar (cf., e.g., Barwise and Cooper (1981), Bach et al. (1995), Bohnemeyer (1998) and Chierchia (1998) for such studies in a variety of domains of natural language). In this section I briefly compare the temporal interpretation of noun phrases in English and Guaraní: I first identify a similarity between the two languages where we might not have expected one (given the exclusion of English from Nordlinger and Sadler (2004, §2)), and then point to a kind of semantic variation in this domain that has not been discussed in the literature yet.

The reason why a language like English is not included in Nordlinger and Sadler's (2004, §2) study is that English does not have grammaticalized temporal expressions in the nominal domain, but "only" temporal adjectives (like *former* and *future*). However, it is evident from the examples in the last section that the temporal adjectives in English serve a similar functional purpose as the Guaraní suffixes: for instance, in (1b), in order to identify that the property 'priest' is not true for the individual denoted by the noun phrase, a speaker of English uses the adjective *former* and a speaker of Guaraní uses the suffix *-kue*. And, in fact, Dowty, Wall and Peters (1981, 163f.) propose an analysis of *former* which is strikingly similar to the one I gave for *-kue* in the last section: (14) basically states that *former priest* is true at a time t if *priest* is true at a time t′ that precedes t, but not at t.

(14) $[\![\text{former}]\!]_{M, g, w, t} = \lambda R_{\langle s, \langle e, t \rangle \rangle} \, [[\![R]\!](\langle w, t \rangle) \neq 1 \land \exists t' \text{ sth. } t' \prec t \, [\![R]\!](\langle w, t' \rangle) = 1]$

This (basically aspectual) analysis of *former* differs from the terminative analysis of *-kue* only in that (14) requires that R is not true at t, while TERM in (11a) requires that the post-state of R is true at t. This difference is crucial with respect to examples like (15). According to the analysis of *former* in (14), the truth value of (15) is false because *former* requires *policeman* to be false at the time of utterance while the adjective *present* requires *policeman* to be true at the time of utterance.

(15)   Peter Hoyle is a former and present Ukiah policeman.[10]

I propose that *former* is better analyzed as a terminative aspect, just like Guaraní *-kue*. (15) then means that, at the utterance time, Peter Hoyle is a policeman as well as in the post-state of being a policeman. This is compatible with what we learn about him in the discourse context: Peter Hoyle was dismissed in the past, but then reinstated. It is not surprising that languages as different as Guaraní and English have expressions that directly affect the temporal interpretation of nouns. As a consequence of my analysis, both languages have nominal aspects (which of course differ in the degree of grammaticalization), and the two languages are not as exotically different as we might think.[11]

However, there exists evidence that points to semantic variation in how noun phrases are temporally interpreted in Guaraní and English, a kind of variation that has not yet been identified in the literature. The first example, in (16), is taken from a folk tale: the main

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[10]`http://www.greenmac.com/eagle/ISSUES/ISSUE23-9/08PoliceAccountability.html`

[11]One important difference between the Guaraní aspectual suffixes and the English adjectives is that the former can co-occur with a wider variety of nominal expressions, like relative and complement clauses.

actor, a monkey, has been tied to a post by a woman who then walked away. The monkey is now trying to trick a fox, who is passing by, into untying him and letting himself be tied to the post. The monkey says (16) to the fox:

(16)   Che-jora pya'e   ai-porõtoro-moĩ che renda-**kué**-pe.
       me-untie quickly I-you-put   my place-KUE-PE
       'Untie me quickly and I'll put you in my place.'

The difference between English and Guaraní that is illustrated by (16) is the time at which the possessive relation between the monkey and the place is interpreted. According to the context, the possessive relation is true at the utterance time, but not at the time in the future (the reference time) at which the verb *moĩ* 'put' is interpreted. In Guaraní, where the possessive noun phrase *che renda* 'my place' is marked with the terminative aspect *-kue*, the possessive relation is interpreted relative to the reference time: *-kue* conveys that the possessive relation is terminated at the reference time. In the English translation, on the other hand, the noun phrase 'my place' is interpreted relative to the utterance time. The examples in (17) illustrate that one cannot force an interpretation of the possessive noun phrase 'my place' relative to the reference time: when the noun phrase *my place* occurs with temporal adjectives that force such an interpretation, the examples are considered strange and overly specify by native speakers of English.

(17)   a.   #Untie me quickly and I'll put you in my former place.
       b.   #Untie me quickly and I'll put you in my then former place.

A second example of this type is (18). Imagine a context in which I state that my friend Juan is marrying tomorrow. A speaker of Guaraní could inquire about Juan's best man using the question in (18a) (with the nominal aspect *-rã*) or the one in (18b) (with the predicative (future tense or irrealis mood) marker *-ta*), but, crucially, the question in (18c) is inappropriate in this context.[12]

(18)   a.   Máva-pa   i-paino-**rã**?
            person-QU his-best.man-RA
            'Who is his future best man?'
       b.   Máva-pa   i-paino-**ta**?
            person-QU his-best.man-TA
            'Who will his best man be?'
       c.   #Máva-pa   i-paino?
            person-QU his-best.man
            'Who is his best man?'

In English, it is perfectly fine to inquire about the identity of Juan's best man with *Who is his best man?* (cf., (18c)) although the wedding is known to take place tomorrow. Thus, the noun phrase *i-paino* 'his best man' in Guaraní must be interpreted at the reference time (which is the utterance time in (18a) and in the future of the utterance time in (18b)), while the English counterpart is not restricted to an interpretation at the reference time

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[12]Although both *-rã* and *-ta* on the surface suffix to the noun phrase *i-paino* 'his best man', I assume that *-rã* modifies the noun phrase while *-ta* modifies a phonologically unrealized copula.

(here, time of utterance) but can be interpreted at a contextually given time in the future.

Concluding, in the two examples in (16) and (18), the Guaraní noun phrases are interpreted at the reference time, whereas the English counterparts can be interpreted at a contextually given time. Future research needs to determine the systematicity of this variation, as well as the contributing factors. For instance, is the variation a correlate of the fact that Guaraní has grammaticalized nominal aspect while English uses adjectives, or is this variation due to a difference between the temporal systems of the two languages, possibly independent of the level of grammaticalization of nominal temporal markers?

3   Some areas for future research

Before concluding this paper, I point to three areas for future research. First, I hypothesize that the nominal temporal markers of most of the languages identified in Nordlinger and Sadler (2004, §2) are nominal *aspects*, too, rather than nominal *tenses*, because their meanings are so strikingly similar to those of corresponding Guaraní examples. For instance, (19) is an example from Halkomelem (Salish) where the possessive noun phrase *tel xeltel* 'my pencil' is suffixed with *-elh*, which Burton (1997) and Nordlinger and Sadler (2004) analyze as a past tense (glossed PST), but I suggest is a terminative aspect.

(19)   tel xeltel-elh
        my pencil-PST
        'my former pencil'   (Burton 1997, 67-68)

Second, there exists at least one language which seems to employ its nominal temporal markers very differently from Guaraní (and which I therefore don't include in the hypothesis stated above). This language is Somali (Cushitic), discussed in great detail in Lecarme's work (cf., e.g., Lecarme 2004). In (20a), the argument noun phrase 'woman', the directional adjunct 'to town' as well as the verb appear with what Lecarme and Nordlinger & Sadler call 'past tenses'. According to the English translation of (20a), the property 'woman' is interpreted at the RT, which precedes the TU, as constrained by the verbal past tense. Thus, the 'nominal past tense' in this example does not convey an anteriority relationship that only applies to the noun 'woman'. Rather, the 'nominal past tense' here conveys the same meaning as the verbal past tense (RT precedes TU), and identifies that the noun is true at RT. And (20b) raises doubt whether this marker really is 'past': *noon* is marked with 'past tense' but (according to the gloss and translation) the marker does not establish any kind of anteriority relationship in (20b) whatsoever.

(20)   a.   naág-t-**ii**   magaalá-**díi**   w-áy tag-t-**ay**.
              woman-f-[+past] town-detF[+past] F-2FS go.to-f-[+past]
              'The woman went to town.'   (Lecarme 2004, (ex5a))
        b.   (wéligay) dúhur-**kíi**   baan wax cunaa.
              always   noon-detM[+past] F.1S thing eat[-past]
              'I (always) eat at noon.'   (Lecarme 2004, (ex6a))

Finally, current theories of temporality assume that tense is the relationship between TU and RT (cf., section 1). This predicts that in order for a language to have nominal tense

that is distinct from verbal tense, we would have to abandon the assumption that there is a unique RT for every proposition. In such a language, nominal tense would express a relationship between TU and a RT that is relevant only for the temporal interpretation of the nominal phrase to which it attaches, while a verbal tense, within the same clause, could relate TU to a RT′, where RT and RT′ are distinct reference times. Given the characterization of the RT as the time the proposition is *about* (cf., e.g., Klein (1994)), the assumption that a proposition could be interpreted relative to two different RTs is conceptually implausible, which in turn precludes the existence of languages with nominal tense. The empirical basis and theoretical consequences of this move are will be addressed in future research.

4   Conclusions

I argue (section 1) that the nominal temporal suffixes of Guaraní are nominal *aspects*, comparable to verbal aspects in well-studied languages and similar in meaning to the English temporal adjectives *former* and *future*. Guaraní and English exhibit differences in the way in which noun phrases are temporally interpreted in context (section 2). The nature of the semantic variation in this domain of language, as well as the topics in section 3, are issues I hope to take up in future research.

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